Cherenkov radiation from 1550 nm pumping in tapered photonic crystal fibers

The generation of Cherenkov radiation from soliton compression of 1550 nm pulses in tapered photonic crystal fibers is analyzed numerically, with a view to generating short-wavelength-tunable output pulses in the visible range. It is shown that low-noise femtosecond light sources with spectral power densities approaching those of existing supercontinuum sources are feasible with existing fiber laser and tapering technology. (C) 2018 Optical Society of America
Compact high-efficiency vortex beam emitter based on a silicon photonics micro-ring

Photonic integrated devices that emit vortex beam carrying orbital angular momentum are becoming key components for multiple applications. Here we propose and demonstrate a high-efficiency vortex beam emitter based on a silicon micro-ring resonator integrated with a metal mirror. Such a compact emitter is capable of generating vortex beams with a high efficiency and small divergence angle. Vector vortex beams of various topological charges are selectively generated by the emitter at different wavelengths with an emission efficiency of up to 37%. (C) 2018 Optical Society of America
In this Letter, a novel method for the characterization of mid-infrared pulses is presented. A cross-correlator system, with no moving parts, combining ultra-broadband pulsed upconversion detection with fast active electronic delay tuning was
built to perform time-resolved spectral characterization of 1.6 ns mid-infrared supercontinuum pulses. Full wavelength/time spectrograms were acquired in steps of 20 ps over a range that can, in theory, extend to microseconds in a matter of seconds, with 48 ps temporal resolution and 22 cm(-1) spectral resolution in the 2700-4300 nm range. This work proves the potential for the use of electronic delay tuning instead of mechanical delay tuning for applications such as cross-correlators and laser spectroscopy, where their fast precise tunability and long delay ranges are a strong asset. (C) 2018 Optical Society of America

**General information**

State: Published
Organisations: Department of Photonics Engineering, Optical Sensor Technology, NKT Photonics A/S
Authors: Huot, L. (Intern), Moselund, P. M. (Ekstern), Tidemand-Lichtenberg, P. (Intern), Pedersen, C. (Intern)
Pages: 2881-2884
Publication date: 2018
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Optics Letters
Volume: 43
Issue number: 12
ISSN (Print): 0146-9592
Ratings:
- BFI (2018): BFI-level 2
- Web of Science (2018): Indexed yes
- BFI (2017): BFI-level 2
- Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
- Web of Science (2017): Indexed yes
- BFI (2016): BFI-level 2
- Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
- Web of Science (2016): Indexed yes
- BFI (2015): BFI-level 2
- Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
- Web of Science (2015): Indexed yes
- BFI (2014): BFI-level 2
- Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
- Web of Science (2014): Indexed yes
- BFI (2013): BFI-level 2
- Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
- ISI indexed (2013): ISI indexed yes
- Web of Science (2013): Indexed yes
- BFI (2012): BFI-level 2
- Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
- ISI indexed (2012): ISI indexed yes
- Web of Science (2012): Indexed yes
- BFI (2011): BFI-level 2
- Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
- ISI indexed (2011): ISI indexed yes
- Web of Science (2011): Indexed yes
- BFI (2010): BFI-level 2
- Scopus rating (2010): SJR 2.637 SNIP 2.263
- Web of Science (2010): Indexed yes
- BFI (2009): BFI-level 1
- Scopus rating (2009): SJR 3.077 SNIP 2.658
- Web of Science (2009): Indexed yes
- BFI (2008): BFI-level 1
- Scopus rating (2008): SJR 3.354 SNIP 2.384
- Web of Science (2008): Indexed yes
- Scopus rating (2007): SJR 3.443 SNIP 2.157
Engineering spectrally unentangled photon pairs from nonlinear microring resonators by pump manipulation

The future of integrated quantum photonics relies heavily on the ability to engineer refined methods for preparing the quantum states needed to implement various quantum protocols. An important example of such states is quantum-correlated photon pairs, which can be efficiently generated using spontaneous nonlinear processes in integrated microring-resonator structures. In this work, we propose a method for generating spectrally unentangled photon pairs from a standard microring resonator. The method utilizes interference between a primary and a delayed secondary pump pulse to effectively increase the pump spectral width inside the cavity. This enables on-chip generation of heralded single photons with state purities in excess of 99% without spectral filtering. (C) 2018 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, Fiber Optics, Devices and Non-linear Effects, Centre of Excellence for Silicon Photonics for Optical Communications, Huawei Technologies
Authors: Christensen, J. B. (Intern), Koefoed, J. G. (Intern), Rottwitt, K. (Intern), McKinstrie, C. J. (Ekstern)
Pages: 859-862
Publication date: 2018
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 43
Issue number: 4
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
We demonstrate experimentally the lateral circular birefringence of a tunable birefringent polymer, the first example of the spin Hall effect of light in a polymeric material, and we demonstrate that this light shift can be significantly enhanced by...
tuning the effective birefringence in the polymer. We report experimental observations of this effect using polarimetric techniques and quantum-weak-measurement techniques, reporting a weak amplification factor of 200
Mid-infrared multispectral tissue imaging using a chalcogenide fiber supercontinuum source

We present the first demonstration of mid-infrared supercontinuum tissue imaging at wavelengths beyond 5 μm using a fiber-coupled supercontinuum source spanning 2-7.5 μm. The supercontinuum was generated in a tapered large mode area chalcogenide photonic crystal fiber in order to obtain broad bandwidth, high average power, and single-mode output for diffraction-limited imaging performance. Tissue imaging was demonstrated in transmission at selected wavelengths between 5.7μm (1754 cm⁻¹) and 7.3μm (1370 cm⁻¹) by point scanning over a sub-mm region of colon tissue, and the results were compared to images obtained from a commercial instrument.
Two-photon polymerization was employed for fabricating microtools amenable to optical trapping and manipulation. A disk feature was included as part of the microtools and further functionalized by electron-beam deposition. The nanostructured gold layer on the disk facilitates off-resonant plasmonic heating upon illumination with a laser beam. As a consequence, natural convection characterized by the typical toroidal shape resembling that of Rayleigh–Bénard flow can be observed. A velocity of several μm·s⁻¹ is measured for 2 μm microspheres dispersed in the surroundings of the microtool. To the best of our knowledge, this is the first time that thermoplasmonic-induced natural convection is experimentally demonstrated using a mobile heat source.
Pulse carving using nanocavity-enhanced nonlinear effects in photonic crystal Fano structures

We experimentally demonstrate the use of a photonic crystal Fano resonance for carving-out short pulses from long-duration input pulses. This is achieved by exploiting an asymmetric Fano resonance combined with carrier-induced nonlinear effects in a photonic crystal membrane structure. The use of a nanocavity concentrates the input field to a very small volume leading to an efficient nonlinear resonance shift that carves a short pulse out of the input pulse. Here, we demonstrate shortening of ~500 ps and ~100 ps long pulses to ~30 ps and ~20 ps pulses, respectively. Furthermore, we demonstrate error-free low duty cycle return-to-zero signal generation at 2 Gbit/s with energy consumption down to ~1 pJ/bit and power penalty of ~2 dB. The device physics and limitations are analyzed using nonlinear coupled-mode theory.
Spatial beam cleanup by pure Kerr processes in multimode fibers

Recent experiments with pulse propagation in multimode graded-index fibers have shown a nonlinear improvement in beam quality, even in situations where dissipative processes such as Raman scattering play no significant role. In this Letter, numerical simulations of beam cleanup by third-order Kerr nonlinearities in a multimode fiber are used to demonstrate that in the absence of dissipative processes beam cleanup is crucially dependent on spectral/temporal disorder and does not occur in a continuous-wave model. This finding is in accordance with fundamental considerations on entropy. (C) 2018 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, Fiber Optics, Devices and Non-linear Effects
Authors: Lægsgaard, J. (Intern)
Pages: 2700-2703
Publication date: 2018
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 43
Issue number: 11
ISSN (Print): 0146-9592
Ratings:
Time-resolved infrared photoluminescence spectroscopy using parametric three-wave mixing with angle-tuned phase matching

A setup for time-resolved photoluminescence spectroscopy, based on parametric three-wave mixing in a periodically poled lithium niobate crystal, is characterized. Special attention is given to adjusting the phase matching condition by angle tuning of the luminescent light relative to a strong, continuous-wave laser beam within the crystal. The detection system is capable of operating at room temperature and in a wavelength range from 1.55 to 2.20 μm. Its sensitivity is compared to a commercial photomultiplier, and its capability of nanosecond time resolution is demonstrated.
Two-color interpolation of the absorption response for quantitative acousto-optic imaging

Diffuse optical tomography (DOT) is a reliable and widespread technique for monitoring qualitative changes in absorption inside highly scattering media. It has been shown, however, that acousto-optic (AO) imaging can provide significantly more qualitative information without the need for inversion algorithms due to the spatial resolution afforded by ultrasound probing. In this Letter, we show how, by using multiple-wavelength AO imaging, it is also possible to perform quantitative measurements of absorber concentration inside scattering media. (C) 2018 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, Diode Lasers and LED Systems, Universite Pierre et Marie Curie, Uzhhorod National University
Authors: Bocoum, M. (Ekstern), Gennisson, J. L. (Ekstern), Venet, C. (Ekstern), Chi, M. (Intern), Petersen, P. M. (Intern), Grabar, A. A. (Ekstern), Ramaz, F. (Ekstern)
Pages: 399-402
Publication date: 2018
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 43
Issue number: 3
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Light and Optics, Optical Devices and Systems, Ultrasonic Applications, Optical tomography, Ultrasonic applications, Acousto-optic imaging, Diffuse optical tomography, Inversion algorithm, Multiple wavelengths, Qualitative changes, Qualitative information, Quantitative measurement, Spatial resolution, Adaptive optics
Bandwidth-adaptable silicon photonic differentiator employing a slow light effect

A photonic differentiator (DIFF) plays a crucial role in photonic circuits. Despite the fact that a DIFF having a tera-hertz bandwidth has been reported, the practical bandwidth is limited to being a bandpass response. In this Letter, we propose the concept of a bandwidth-adaptable DIFF, which exploits the slow light effect in a photonic crystal waveguide (PhCW) to overcome the inherent bandwidth limitation of current photonic DIFFs. We fabricated a PhCW Mach-Zehnder interferometer (PhCW-MZI) on the silicon-on-isolator material platform to validate our concept. Input Gaussian pulses with full width to half-maximums (FWHMs) ranging from 2.7 to 81.4 ps are accurately differentiated using our PhCW-MZI. Our all-passive scheme circumvents the bandwidth bottlenecks of previously reported photonic DIFFs and can greatly broaden the application area of photonic DIFFs. (C) 2017 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, Nanophotonic Devices, Centre of Excellence for Silicon Photonics for Optical Communications, High-Speed Optical Communication, Huazhong University of Science and Technology
Authors: Yan, S. (Ekstern), Cheng, Z. (Ekstern), Frandsen, L. H. (Intern), Ding, Y. (Intern), Zhou, F. (Ekstern), Dong, J. (Ekstern), Zhang, X. (Ekstern)
Pages: 1596-1599
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 42
Issue number: 8
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
BDK-doped core microstructured PMMA optical fiber for effective Bragg grating photo-inscription

An endlessly single-mode doped microstructured poly(methyl methacrylate) (PMMA) optical fiber is produced for effective fiber Bragg grating (FBG) photo-inscription by means of a 400 nm femtosecond pulsed laser and the phase mask technique. The fiber presents a uniform benzyl dimethyl ketal (BDK) distribution in its core without drastic loss increase. It was produced using the selected center hole doping technique, and the BDK dopant acts as a photoinitiator. In this Letter, we report a rapidly growing process of the grating reflection band. For an 11 mW mean laser power, the FBG reflectivity reaches 83% in only 40 s.

General information
State: Published
Organisations: Department of Photonics Engineering, Fiber Sensors and Supercontinuum Generation, University of Mons
Pages: 2209-2212
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 42
Issue number: 11
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Control of exceptional points in photonic crystal slabs

Various ways of controlling the extent of the ring of exceptional points in photonic crystal slabs are investigated. The extent of the ring in photonic crystal slabs is found to vary with the thickness of the slab. This enables recovery of Dirac cones in open, non-Hermitian systems, such as a photonic crystal slab. In this case, all three bands exhibit a bound state in the continuum in close proximity of the Γ point. These results may lead to new designs of small photonic-crystal-based lasers exhibiting high-quality factors.

General information
State: Published
Organisations: Department of Electrical Engineering, Electromagnetic Systems, Department of Photonics Engineering, Nanophotonics Theory and Signal Processing
Authors: Kaminski, P. M. (Intern), Taghizadeh, A. (Intern), Breinbjerg, O. (Intern), Mørk, J. (Intern), Arslanagic, S. (Intern)
Pages: 2866-2869
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 42
Issue number: 15
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
We experimentally investigate the dependence of Kerr comb generation, comb linewidth, and coherent system performance on the pump linewidth in a microresonator. We find that the generation of the primary comb can have a larger tolerance to the pump linewidth compared with that of the low-phase-noise comb. In addition, the linewidths of the generated combs are almost linearly dependent on the pump linewidth in the primary and low-phase-noise states. Furthermore, the optical signal-to-noise ratio penalty between the pump and generated Kerr combs in a coherent communication system is less than 0.2 dB in both the primary and low-phase-noise states, showing that Kerr frequency combs in these two states can have similar coherent system performance to the pump.
Dual-pump generation of high-coherence primary Kerr combs with multiple sub-lines

We experimentally generate high-coherence primary Kerr combs with multiple sub-lines by using dual pumps and demonstrate the application of a primary comb state in multichannel communications. We find that more than 10 primary comb lines can be generated within the spectrum of modulation instability gain in our microring resonator. The generation
is also verified by numerical simulations and the measured linewidth confirms the high coherence of the generated primary comb lines. We also demonstrate the high-coherence characteristics in a coherent communication experiment, in which each comb line is encoded with 20 Gbaud quadrature phase-shift-keyed signals.

**General information**

State: Published
Organisations: University of Southern California, Ecole Polytechnique Federale de Lausanne (EPFL), Tianjin University, Raytheon Company, Tel Aviv University
Authors: Bao, C. (Ekstern), Liao, P. (Ekstern), Kordts, A. (Intern), Zhang, L. (Ekstern), Karpov, M. (Ekstern), Pfeiffer, M. H. P. (Ekstern), Cao, Y. (Ekstern), Yan, Y. (Ekstern), Almaiman, A. (Ekstern), Xie, G. (Ekstern), Mohajerin-Ariaei, A. (Ekstern), Li, L. (Ekstern), Ziyadi, M. (Ekstern), Wilkinson, S. R. (Ekstern), Tur, M. (Ekstern), Kippenberg, T. J. (Ekstern), Willner, A. E. (Ekstern)
Number of pages: 4
Pages: 595-598
Publication date: 2017
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Optics Letters
Volume: 42
Issue number: 3
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Full-vectorial propagation model and modified effective mode area of four-wave mixing in straight waveguides

We derive from Maxwell's equations full-vectorial nonlinear propagation equations of four-wave mixing valid in straight semiconductor-on-insulator waveguides. Special attention is given to the resulting effective mode area, which takes a convenient form known from studies in photonic crystal fibers, but has not been introduced in the context of integrated waveguides. We show that the difference between our full-vectorial effective mode area and the scalar equivalent often referred to in the literature may lead to mistakes when evaluating the nonlinear refractive index and optimizing designs of new waveguides. We verify the results of our derivation by comparing it to experimental measurements in a silicon-on-insulator waveguide, taking tolerances on fabrication parameters into account. (C) 2017 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, Fiber Optics, Devices and Non-linear Effects, Centre of Excellence for Silicon Photonics for Optical Communications, Nanophotonic Devices, High-Speed Optical Communication, Diode Lasers and LED Systems, National University of Defense Technology, Technical University of Denmark
Authors: Guo, K. (Ekstern), Friis, S. M. M. (Intern), Christensen, J. B. (Intern), Christensen, E. N. (Intern), Shi, X. (Ekstern), Ding, Y. (Intern), Ou, H. (Intern), Rottwitt, K. (Intern)
Pages: 3670-3673
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 42
Issue number: 18
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Octave-spanning supercontinuum generation in a silicon-rich nitride waveguide: Erratum
We update the simulations presented in Opt. Lett. 41, 2719 (2016) [CrossRef] using a corrected value for the material nonlinearity.

General information
Photonic linear chirped microwave signal generation based on the ultra-compact spectral shaper using the slow light effect

A novel concept to generate a linear chirped microwave signal is proposed and experimentally demonstrated. The frequency to time mapping method is employed, where the photonic crystal waveguide Mach-Zehnder interferometer structure acts as the spectral shaper thanks to the slow light effect. By optimizing the structural parameters of the photonic crystal waveguide, a linear chirped microwave signal with the time-bandwidth product of about 30 is experimentally obtained. The impact of the slow light photonic crystal waveguide on the generated linear chirped microwave signal is also investigated. The utilization of the slow light effect brings in significant advantages, including the ultra-small footprint of 0.096 mm² and simple structure to our scheme, which may be of great importance towards its potential applications. (C) 2017 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, Nanophotonic Devices, High-Speed Optical Communication, Huazhong University of Science and Technology, Sun Yat-Sen University
Authors: Yan, S. (Ekstern), Gao, S. (Ekstern), Zhou, F. (Ekstern), Ding, Y. (Intern), Dong, J. (Ekstern), Cai, X. (Ekstern), Zhang, X. (Ekstern)
Pages: 3299-3302
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 42
Issue number: 17
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Programmable optical waveform reshaping on a picosecond timescale

We experimentally demonstrate the temporal reshaping of optical waveforms in the telecom wavelength band using the principle of quantum frequency conversion. The reshaped optical pulses do not undergo any wavelength translation. The interaction takes place in a nonlinear chi$^{(2)}$ waveguide using an appropriately designed pump pulse programmed via an optical waveform generator. We show the reshaping of a single-peak pulse into a double-peak pulse and vice versa. We also show that exponentially decaying pulses can be reshaped into a near Gaussian shape, and vice versa, which is a
We experimentally demonstrate pump-linewidth-tolerant wavelength multicasting using microresonator-based soliton Kerr frequency combs. When Kerr comb lines serve as coherent pumps in a periodically poled lithium niobate waveguide, the linewidth of the multicast signal almost remains that of the original signal at different linewidths of Kerr combs, ranging from 100 kHz to 1 MHz. However, in conventional multicasting where free-running (FR) pumps are used, the linewidth of the converted signal significantly increases. Furthermore, the error vector magnitude (EVM) performance demonstrates eight-fold error-free multicasting of 10 Gbaud 16-quadrature amplitude modulation signals, even when the linewidths of the Kerr combs are as broad as 1 MHz (no Kalman filtering algorithm in the receiver). In contrast, the EVM performance of the signal copy is degraded with an FR laser as a dummy pump.

General information
State: Published
Organisations: University of Southern California, Ecole Polytechnique Federale de Lausanne (EPFL), Tianjin University, Tel Aviv University, Stanford University
Authors: Liao, P. (Ekstern), Bao, C. (Ekstern), Kordts, A. (Intern), Karpov, M. (Ekstern), Pfeiffer, M. H. P. (Ekstern), Zhang, L. (Ekstern), Cao, Y. (Ekstern), Almaiman, A. (Ekstern), Mohajerin-Ariaei, A. (Ekstern), Tur, M. (Ekstern), Fejer, M. M. (Ekstern), Kippenberg, T. J. (Ekstern), Willner, A. E. (Ekstern)
Number of pages: 4
Pages: 3177-3180
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 42
Issue number: 16
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
In this Letter, we investigate the possibility of using a commercially available Q-switch-pumped supercontinuum (QS-SC) source, operating in the kilohertz regime, for ultra-high resolution optical coherence tomography (UHR-OCT) in the 1300 nm region. The QS-SC source proves to be more intrinsically stable from pulse to pulse than a mode-locked-based SC (ML-SC) source while, at the same time, is less expensive. However, its pumping rate is lower than that used in ML-SC sources. Therefore, we investigate here specific conditions to make such a source usable for OCT. We compare images acquired with the QS-SC source and with a current state-of-the-art SC source used for imaging. We show that comparable
visual contrast obtained with the two technologies is achievable by increasing the readout time of the camera to include a sufficient number of QS-SC pulses.

**General information**

State: Published
Organisations: Department of Photonics Engineering, Fiber Sensors and Supercontinuum Generation, University of Kent, NKT Photonics A/S
Authors: Maria, M. (Intern), Bravo Gonzalo, I. (Intern), Feuchter, T. (Ekstern), Denninger, M. (Ekstern), Moselund, P. M. (Ekstern), Leick, L. (Ekstern), Bang, O. (Intern), Podoleanu, A. (Ekstern)
Number of pages: 4
Publication date: 2017
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Optics Letters
Volume: 42
Issue number: 22
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Reconfigurable opto-thermal graded-index waveguiding in bulk chalcogenide glasses

In the absence of suitable deposition processes, the fabrication of graded-index chalcogenide waveguides or fibers remains an outstanding challenge. Here, by exploiting the strong thermo-optic effect present in chalcogenide glasses, we experimentally demonstrate non-permanent optically-induced waveguides in bulk As$_2$Se$_3$ rods using a 1.55 μm wavelength laser. This single-step process can be used not only to self-trap the writing beam, but also to guide another optical beam at a different wavelength in the opto-thermally inscribed waveguide channel. These results could pave the way towards harnessing nonlinear effects in graded-index chalcogenide guided settings. (C) 2017 Optical Society of America
We investigate numerically soliton-plasma interaction in a noble-gas-filled silica hollow-core anti-resonant fiber pumped in the mid-IR at 3.0 μm. We observe multiple soliton self-compression stages due to distinct stages where either the self-focusing or the self-defocusing nonlinearity dominates. Specifically, the parameters may be tuned so the competing plasma self-defocusing nonlinearity only dominates over the Kerr self-focusing nonlinearity around the soliton self-compression stage, where the increasing peak intensity on the leading pulse edge initiates a competing self-defocusing
plasma nonlinearity acting nonlocally on the trailing edge, effectively preventing soliton formation there. As the plasma
switches off after the self-compression stage, self-focusing dominates again, initiating another soliton self-compression
stage in the trailing edge. This process is accompanied by supercontinuum generation spanning 1-4 μm. We find that
the spectral coherence drops as the secondary compression stage is initiated. (C) 2017 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, Ultrafast Infrared and Terahertz Science, Fiber Sensors and
Supercontinuum Generation, Plasmonics and Metamaterials
Authors: Habib, S. (Intern), Markos, C. (Intern), Bang, O. (Intern), Bache, M. (Intern)
Pages: 2232-2235
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 42
Issue number: 11
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Soliton-plasma nonlinear dynamics in mid-IR gas-filled hollow-core fibers
This publisher's note corrects Eq. (1) of Opt. Lett.42, 2232 (2017)OPLEDP0146-959210.1364/OL.42.002232.

General information
State: Published
Organisations: Department of Photonics Engineering, Ultrafast Infrared and Terahertz Science, Fiber Sensors and
Supercontinuum Generation, Plasmonics and Metamaterials
Authors: Habib, M. S. (Intern), Markos, C. (Intern), Bang, O. (Intern), Bache, M. (Intern)
Number of pages: 1
Pages: 2943-2943
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 42
Issue number: 15
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
Strongly enhanced molecular fluorescence with ultra-thin optical magnetic mirror metasurfaces

As a kind of two-dimensional metamaterial, metasurfaces can modify the amplitude, phase, and polarization of the transmitted or reflected electromagnetic wave, and thereby can be used for enhancing the light–matter interactions. Based on this notion, an optical magnetic mirror metasurface featuring periodic nanoscale grooves is designed to confine the strong electric field near the metal surface by magnetic responses. As a result, fluorescence from an ultra-thin layer of fluorescent polymer blend (~15 nm) on the mirror surface can be strongly enhanced (by 45-fold in experiment). The fluorescence emission can be controlled by the polarization of excitation light since the responses of the magnetic mirror are polarization sensitive. This kind of magnetic mirror metasurface is potentially useful in biological monitors, optical sources, and chemical sensors.

General information
State: Published
Organisations: Zhejiang University
Tunable insertion of multiple lines into a Kerr frequency comb using electro-optical modulators

We experimentally insert a flexible number of electro-optical (EO) comb lines into a Kerr frequency comb via EO modulation and demonstrate the use of combined Kerr and EO combs as light sources in coherent communications. The number of EO lines inserted into the Kerr comb can be varied by changing the modulation frequency. Additionally, the inserted EO comb is found to have similar coherence to that of the Kerr comb, as indicated by their linewidths. The high coherence of both the Kerr and EO combs has further been demonstrated in a communication experiment in which the comb lines are encoded with 10 Gbaud quadrature phase-shift-keyed signals. The increased number of comb lines after EO modulation indicates the possibility of obtaining more data channels in optical communications.

General information
State: Published
Organisations: University of Southern California, Ecole Polytechnique Federale de Lausanne (EPFL), Tianjin University
Authors: Bao, C. (Ekstern), Liao, P. (Ekstern), Kordts, A. (Intern), Karpov, M. (Ekstern), Pfeiffer, M. H. (Ekstern), Zhang, L. (Ekstern), Cao, Y. (Ekstern), Xie, G. (Ekstern), Liu, C. (Ekstern), Yan, Y. (Ekstern), Almaiman, A. (Ekstern), Mohajerin-Arlaei, A. (Ekstern), Fallahpour, A. (Ekstern), Tur, M. (Ekstern), Kippenberg, T. J. (Ekstern), Willner, A. E. (Ekstern)
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 42
Issue number: 19
Article number: 3765
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Ultra-broadband mid-wave-IR upconversion detection

In this Letter, we demonstrate efficient room temperature detection of ultra-broadband mid-wave-infrared (MWIR) light with an almost flat response over more than 1200 nm, exploiting an efficient nonlinear upconversion technique. Black-body radiation from a hot soldering iron rod is used as the IR test source. Placing a 20 mm long periodically poled lithium niobate crystal in a compact intra-cavity setup (> 20 WCW pump at 1064 nm), MWIR wavelengths ranging from 3.6 to 4.85 μm are upconverted to near-infrared (NIR) wavelengths (820-870 nm). The NIR light is detected using a standard low-noise silicon-based camera/grating spectrometer. The proposed technique allows high conversion efficiency over a wider bandwidth without any need for a shorter crystal length. Different analytical predictions and numerical simulations are performed a priori to support the experimental demonstrations. (C) 2017 Optical Society of America
Upconversion imaging using short-wave infrared picosecond pulses
To the best of our knowledge, we present the first demonstration of short-wavelength infrared image upconversion that employs intense picosecond signal and pump beams. We use a fiber laser that emits a signal beam at 1877 nm and a pump beam at 1550 nm—both with a pulse width of 1 ps and a pulse repetition rate of 21.7 MHz. Due to synchronization of high peak-power pulses, efficient upconversion is achieved in a single-pass setup that employs a bulk lithium niobate crystal. Optimizing the temporal overlap of the pulses for high upconversion efficiency enables us to exploit a relatively large pump beam diameter to upconvert a wider range of signal spatial frequencies in the crystal. The 1877 nm signal is converted into 849 nm—enabling an image to be acquired by a silicon CCD camera. The measured size of the smallest resolvable element of this imaging system is consistent with the value predicted by an improved model that considers the combined image blurring effect due to finite pump beam size, thick nonlinear crystal, and polychromatic infrared illumination.
Zeonex-PMMA microstructured polymer optical FBGs for simultaneous humidity and temperature sensing

In this Letter, we report for the first time, to the best of our knowledge, the fabrication and characterization of a Zeonex/PMMA microstructured polymer optical fiber (mPOF) Bragg grating sensor for simultaneous monitoring of relative humidity (RH) and temperature. The sensing element (probe) is based on two separate in-line fiber Bragg gratings (FBGs) inscribed in the fabricated mPOF. A root mean square deviation of 0.8% RH and 0.6°C in the range of 10%-90% RH and 20°C-80°C was found. The developed mPOFBG sensor constitutes an efficient route toward low-cost, easy-to-fabricate and compact multi-parameter sensing solutions.
We present the first (to the best of our knowledge) experimental demonstration of a 56 Gb/s multi-band carrierless amplitude and phase modulation (CAP) signal transmission over an 80-km single-mode fiber link with zero overhead pre-FEC signal recovery and enhanced timing jitter tolerance for optical data center interconnects.
We propose a novel approach for all-optical return-to-zero (RZ) to non-return-to-zero (NRZ) telecommunication data format conversion based on linear spectral phase manipulation of an RZ data signal. The operation principle is numerically analyzed and experimentally validated through successful format conversion of a 640 Gbit/s coherent RZ signal into the equivalent NRZ time-domain data using a simple phase filter implemented by a commercial optical waveshaper. (C) 2015 Optical Society of America
Demonstration of optical multicasting using Kerr frequency comb lines

We experimentally demonstrate optical multicasting using Kerr frequency combs generated from a Si₃N₄ microresonator. We obtain Kerr combs in two states with different noise properties by varying the pump wavelength in the resonator and investigate the effect of Kerr combs on multicasting. Seven-fold multicasting of 20 Gbaud quadrature phase-shift-keyed signals and four-fold multicasting of 16-quadrature amplitude modulation signals have been achieved when low-phase-noise combs are input into a periodically poled lithium niobate waveguide. In addition, we find that the wavelength conversion efficiency in the PPLN waveguide for chaotic combs with high noise is similar to that for low-noise combs, while the signal quality of the multicast copy is significantly degraded.

General information

State: Published
Organisations: Ecole Polytechnique Federale de Lausanne (EPFL), University of Southern California, Tianjin University, Raytheon Company, Tel Aviv University, Stanford University
Number of pages: 4
Pages: 3876-3879
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 41
Issue number: 16
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
We present a quantitative comparison of continuous-wave (CW) and pulsed-pump four-wave mixing (FWM) in commercially available highly nonlinear fibers (HNLFs), and suggest properties for which the CW and pulsed FWM bandwidths are limited in practice. The CW and pulsed-pump parametric gain is characterized experimentally for several HNLFs with various dispersion properties, including zero-dispersion wavelength fluctuations, and the results are interpreted in conjunction with detailed numerical simulations. It is found that a low third order dispersion (TOD) is essential for the pulsed-pump FWM bandwidth. However, an inverse scaling of the TOD with the dispersion fluctuations, leads to different CW-optimized fibers, which depend only on the even dispersion-orders.

**Detailed characterization of CW- and pulsed-pump four-wave mixing in highly nonlinear fibers**

We present a quantitative comparison of continuous-wave (CW) and pulsed-pump four-wave mixing (FWM) in commercially available highly nonlinear fibers (HNLFs), and suggest properties for which the CW and pulsed FWM bandwidths are limited in practice. The CW and pulsed-pump parametric gain is characterized experimentally for several HNLFs with various dispersion properties, including zero-dispersion wavelength fluctuations, and the results are interpreted in conjunction with detailed numerical simulations. It is found that a low third order dispersion (TOD) is essential for the pulsed-pump FWM bandwidth. However, an inverse scaling of the TOD with the dispersion fluctuations, leads to different CW-optimized fibers, which depend only on the even dispersion-orders.

**General information**

State: Published
Organisations: Department of Photonics Engineering, High-Speed Optical Communication, Centre of Excellence for Silicon Photonics for Optical Communications, OFS Fitel Denmark ApS
Authors: Lillieholm, M. (Intern), Galili, M. (Intern), Grüner-Nielsen, L. (Ekstern), Oxenløwe, L. K. (Intern)
Pages: 4887-4890
Publication date: 2016
Main Research Area: Technical/natural sciences
Effect of loss on slow-light-enhanced second-harmonic generation in periodic nanostructures

We theoretically analyze the dependence of second-harmonic generation efficiency on the group index in periodic optical waveguides with loss. We investigate different possible scenarios of using slow light to enhance the efficiency of this process and show that in some cases there exists a maximally achievable efficiency reached for finite values of the group index at the point of phase-matching. Furthermore, we identify situations for which slow light, surprisingly, does not enhance the second-harmonic generation efficiency. Our results are corroborated by rigorous nonlinear simulations of second-harmonic generation in periodic nanobeam waveguides with loss. (C) 2016 Optical Society of America
Experimental demonstration of graphene plasmons working close to the near-infrared window

Due to strong mode confinement, long propagation distance, and unique tunability, graphene plasmons have been widely explored in the mid-infrared and terahertz windows. However, it remains a big challenge to push graphene plasmons to shorter wavelengths to integrate graphene plasmon concepts with existing mature technologies in the near-infrared region. We investigate localized graphene plasmons supported by graphene nanodisks and experimentally demonstrate graphene plasmon working at 2 μm with the aid of a fully scalable block copolymer self-assembly method. Our results show a promising way to promote graphene plasmons for both fundamental studies and potential applications in the near-infrared window.

General information
State: Published
Organisations: Center for Nanostructured Graphene, Department of Micro- and Nanotechnology, Self-Organized Nanoporous Materials, Amphiphilic Polymers in Biological Sensing, Department of Photonics Engineering, Structured Electromagnetic Materials
Authors: Wang, Z. (Intern), Li, T. (Intern), Almdal, K. (Intern), Mortensen, N. A. (Intern), Xiao, S. (Intern), Ndoni, S. (Intern)
Pages: 5345-5348
Frequency-comb-assisted broadband precision spectroscopy with cascaded diode lasers

Frequency-comb-assisted diode laser spectroscopy, employing both the accuracy of an optical frequency comb and the broad wavelength tuning range of a tunable diode laser, has been widely used in many applications. In this Letter, we present a novel method using cascaded frequency agile diode lasers, which allows us to extend the measurement bandwidth to 37.4 THz (1355-1630 nm) at megahertz resolution with scanning speeds above 1 THz/s. It is demonstrated as a useful tool to characterize a broadband spectrum for molecular spectroscopy, and in particular it enables us to characterize the dispersion of integrated microresonators up to the 4th-order. (C) 2016 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, Fiber Optics, Devices and Non-linear Effects, Ecole Polytechnique Federale de Lausanne (EPFL)
Authors: Liu, J. (Ekstern), Brasch, V. (Ekstern), Pfeiffer, M. H. P. (Ekstern), Kordts, A. (Intern), Kamel, A. N. (Intern), Guo, H. (Ekstern), Geiselmann, M. (Ekstern), Kippenberg, T. J. (Ekstern)
Pages: 3134-3137
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 41
Issue number: 13
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Green high-power tunable external-cavity GaN diode laser at 515 nm

A 480 mW green tunable diode laser system is demonstrated for the first time to our knowledge. The laser system is based on a GaN broad-area diode laser and Littrow external-cavity feedback. The green laser system is operated in two modes by switching the polarization direction of the laser beam incident on the grating. When the laser beam is p-polarized, an output power of 50 mW with a tunable range of 9.2 nm is achieved. When the laser beam is s-polarized, an output power of 480 mW with a tunable range of 2.1 nm is obtained. This constitutes the highest output power from a tunable green diode laser system.
Heralded source of bright multi-mode mesoscopic sub-Poissonian light

In a direct detection scheme, we observed 7.8 dB of twin-beam squeezing for multi-mode two-color squeezed vacuum generated via parametric downconversion. Applying postselection, we conditionally prepared a sub-Poissonian state of light containing $6.3 \times 10^5$ photons per pulse on the average with the Fano factor 0.63 +/- 0.01. The scheme can be considered as the heralded preparation of pulses with the mean energy varying between tens and hundreds of fJ and the uncertainty considerably below the shot-noise level. Such pulses can be used in metrology (for instance, for radiometer calibration), as well as for probing multi-mode non-linear optical effects. (C) 2016 Optical Society of America
Higher order mode suppression in high-Q anomalous dispersion SiN microresonators for temporal dissipative Kerr soliton formation

High-Q silicon nitride (SiN) microresonators enable optical Kerr frequency comb generation on a photonic chip and have recently been shown to support fully coherent combs based on temporal dissipative Kerr soliton formation. For bright soliton formation, it is necessary to operate SiN waveguides in the multimode regime in order to produce waveguide induced anomalous group velocity dispersion. However, this regime can lead to local disturbances of the dispersion due to avoided crossings caused by coupling between different mode families and, therefore, prevent the soliton formation. Here, we demonstrate that a single-mode "filtering" section inside high-Q resonators enables efficiently suppression of avoided crossings, while preserving high quality factors (Q similar to 10^6). We verify the approach by demonstrating single soliton formation in SiN resonators with a filtering section. (C) 2016 Optical Society of America
Low-loss high-confinement waveguides and microring resonators in AlGaAs-on-insulator

AlGaAs is a promising material for integrated nonlinear photonics due to its intrinsic high nonlinearity. However, the challenging fabrication of deep etched AlGaAs devices makes it difficult to realize high-performance devices such as low-loss dispersion engineered waveguides and high quality microring resonators. Here, we report a process to make high-quality AlGaAs-on-insulator (AlGaAsOI) wafers where high confinement waveguides can be realized. Using optimized patterning processes, we fabricated AlGaAsOI waveguides with propagation losses as low as 1 dB/cm and microring resonators with quality factors up to 350,000 at telecom wavelengths. Our demonstration opens new prospects for AlGaAs devices in integrated nonlinear photonics.

General information
State: Published
Organisations: Department of Photonics Engineering, Nanophotonic Devices, Centre of Excellence for Silicon Photonics for Optical Communications
Authors: Ottaviano, L. (Intern), Pu, M. (Intern), Semenova, E. (Intern), Yvind, K. (Intern)
Pages: 3996-3999
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 41
Issue number: 17
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Modulation of electromagnetic fields by a depolarizer of random polarizer array

The statistical properties of the electric fields with random changes of the polarization state in space generated by a depolarizer are investigated on the basis of the coherence matrix. The depolarizer is a polarizer array composed of a multitude of contiguous square cells of polarizers with randomly distributed polarization angles, where the incident fields experience a random polarization modulation after passing through the depolarizer. The propagation of the modulated electric fields through any quadratic optical system is examined within the framework of the complex ABCD matrix to show how the degree of coherence and the degree of polarization change on propagation.

General information
State: Published
Organisations: Department of Photonics Engineering, Optical Sensor Technology, Heriot-Watt University
Authors: Ma, N. (Ekstern), Hanson, S. G. (Intern), Wang, W. (Ekstern)
Pages: 1997-2000
Publication date: 2016
Main Research Area: Technical/natural sciences

<table>
<thead>
<tr>
<th>Publication information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Journal:</strong> Optics Letters</td>
</tr>
<tr>
<td><strong>Volume:</strong> 41</td>
</tr>
<tr>
<td><strong>Issue number:</strong> 9</td>
</tr>
<tr>
<td><strong>ISSN (Print):</strong> 0146-9592</td>
</tr>
<tr>
<td><strong>Ratings:</strong></td>
</tr>
<tr>
<td>BFI (2018): BFI-level 2</td>
</tr>
<tr>
<td>Web of Science (2018): Indexed yes</td>
</tr>
<tr>
<td>BFI (2017): BFI-level 2</td>
</tr>
<tr>
<td>Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597</td>
</tr>
<tr>
<td>Web of Science (2017): Indexed yes</td>
</tr>
<tr>
<td>BFI (2016): BFI-level 2</td>
</tr>
<tr>
<td>Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549</td>
</tr>
<tr>
<td>Web of Science (2016): Indexed yes</td>
</tr>
<tr>
<td>BFI (2015): BFI-level 2</td>
</tr>
<tr>
<td>Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53</td>
</tr>
<tr>
<td>Web of Science (2015): Indexed yes</td>
</tr>
<tr>
<td>BFI (2014): BFI-level 2</td>
</tr>
<tr>
<td>Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86</td>
</tr>
<tr>
<td>Web of Science (2014): Indexed yes</td>
</tr>
<tr>
<td>BFI (2013): BFI-level 2</td>
</tr>
<tr>
<td>Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95</td>
</tr>
<tr>
<td>ISI indexed (2013): ISI indexed yes</td>
</tr>
<tr>
<td>Web of Science (2013): Indexed yes</td>
</tr>
<tr>
<td>BFI (2012): BFI-level 2</td>
</tr>
<tr>
<td>Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52</td>
</tr>
<tr>
<td>ISI indexed (2012): ISI indexed yes</td>
</tr>
<tr>
<td>Web of Science (2012): Indexed yes</td>
</tr>
<tr>
<td>BFI (2011): BFI-level 2</td>
</tr>
<tr>
<td>Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69</td>
</tr>
<tr>
<td>ISI indexed (2011): ISI indexed yes</td>
</tr>
<tr>
<td>Web of Science (2011): Indexed yes</td>
</tr>
<tr>
<td>BFI (2010): BFI-level 2</td>
</tr>
<tr>
<td>Scopus rating (2010): SJR 2.637 SNIP 2.263</td>
</tr>
<tr>
<td>Web of Science (2010): Indexed yes</td>
</tr>
<tr>
<td>BFI (2009): BFI-level 1</td>
</tr>
<tr>
<td>Scopus rating (2009): SJR 3.077 SNIP 2.658</td>
</tr>
<tr>
<td>Web of Science (2009): Indexed yes</td>
</tr>
<tr>
<td>BFI (2008): BFI-level 1</td>
</tr>
<tr>
<td>Scopus rating (2008): SJR 3.354 SNIP 2.384</td>
</tr>
<tr>
<td>Web of Science (2008): Indexed yes</td>
</tr>
<tr>
<td>Scopus rating (2007): SJR 3.443 SNIP 2.157</td>
</tr>
<tr>
<td>Web of Science (2007): Indexed yes</td>
</tr>
<tr>
<td>Scopus rating (2006): SJR 3.126 SNIP 2.319</td>
</tr>
<tr>
<td>Web of Science (2006): Indexed yes</td>
</tr>
<tr>
<td>Scopus rating (2005): SJR 3.245 SNIP 2.451</td>
</tr>
<tr>
<td>Web of Science (2005): Indexed yes</td>
</tr>
<tr>
<td>Scopus rating (2004): SJR 3.523 SNIP 2.726</td>
</tr>
<tr>
<td>Web of Science (2004): Indexed yes</td>
</tr>
</tbody>
</table>
Novel porous fiber based on dual-asymmetry for low-loss polarization maintaining THz wave guidance

In this Letter, we suggest a novel kind of porous-core photonic crystal fiber (PCF) (to the best of our knowledge) for efficient transportation of polarization maintaining (PM) terahertz (THz) waves. We introduce an asymmetry in both the porous-core and the porous-cladding of the structure to achieve an ultra-high birefringence. Besides, only circular air holes have been used to represent the structure, which makes the fiber remarkably simple. The transmission characteristics have been numerically examined based on an efficient finite element method (FEM). The numerical results confirm a high birefringence of ~0.045 and a very low effective absorption loss of 0.08 cm⁻¹ for optimal design parameters at 1 THz. We have also thoroughly investigated some important modal properties such as bending loss, power fraction, dispersion, and fabrication possibilities to completely analyze the structure's usability in a multitude of THz appliances. Moreover, physical insights of the proposed fiber have also been discussed. © 2016 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, Rajshahi University of Engineering and Technology
Authors: Islam, R. (Ekstern), Habib, S. (Intern), Hasanuzzaman, G. (Ekstern), Rana, S. (Ekstern), Sadath, A. (Ekstern)
Pages: 440-443
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 41
Issue number: 3
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
We experimentally show octave-spanning supercontinuum generation in a nonstoichiometric silicon-rich nitride waveguide when pumped by femtosecond pulses from an erbium fiber laser. The pulse energy and bandwidth are comparable to results achieved in stoichiometric silicon nitride waveguides, but our material platform is simpler to manufacture. We also observe wave-breaking supercontinuum generation by using orthogonal pumping in the same waveguide. Additional analysis reveals that the waveguide height is a powerful tuning parameter for generating mid-infrared dispersive waves while keeping the pump in the telecom band.
Spectral symmetry of Fano resonances in a waveguide coupled to a microcavity

We investigate the symmetry of transmission spectra in a photonic crystal (PhC) waveguide with a side-coupled cavity and a partially transmitting element (PTE). We demonstrate, through numerical calculations, that by varying the cavity-PTE distance the spectra vary from being asymmetric with the minimum blueshifted relative to the maximum, to being symmetric (Lorentzian), to being asymmetric with the minimum redshifted relative to the maximum. For cavity-PTE distances larger than five PhC lattice constants, we show that the transmission spectrum is accurately described as the transmission spectrum of a Fabry–Perot etalon with a single propagating Bloch mode and that the symmetry of the transmission spectrum correlates with the Fabry–Perot round-trip phase.

General information
State: Published
Organisations: Department of Photonics Engineering, Nanophotonics Theory and Signal Processing
Authors: Østerkryger, A. D. (Intern), de Lasson, J. R. (Intern), Heuck, M. (Intern), Yu, Y. (Intern), Mørk, J. (Intern), Gregersen, N. (Intern)
Pages: 2065-2068
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 41
Issue number: 9
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
Third-order susceptibility of gold for ultrathin layers
This Letter presents an experimental study of nonlinear plasmonic effects in gold-stripe waveguides. The optical characterization is performed by a picosecond laser and reveals two nonlinear effects related to propagation of long-range surface plasmon polaritons: nonlinear power transmission of plasmonic modes and spectral broadening of plasmonic modes. The experimental values of the third-order susceptibility of the gold layers are extracted. They exhibit a clear dependence on layer thickness. (C) 2016 Optical Society of America
Upconversion imaging using an all-fiber supercontinuum source

In this Letter, the first demonstration, to the best of our knowledge, of pulsed upconversion imaging using supercontinuum light is presented. A mid-infrared (IR) imaging system was built by combining a mid-IR supercontinuum source emitting between 1.8 and 2.6 μm with upconversion detection. The infrared signal is used to probe a sample and mixed with a synchronized 1550 nm laser pulse inside a lithium niobate (LiNbO3) crystal. The signal is thus upconverted to the 860-970 nm range and acquired on a standard silicon CCD array at a rate of 22 frames per second. In our implementation, spatial features in the sample plane as small as 55 μm could be resolved. (C) 2016 Optical Society of America
Dispersive waves induced by self-defocusing temporal solitons in a beta-barium-borate crystal.

We experimentally observe dispersive waves in the anomalous dispersion regime of a beta-barium-borate (BBO) crystal, induced by a self-defocusing few-cycle temporal soliton. Together the soliton and dispersive waves form an energetic octave-spanning supercontinuum. The soliton was excited in the normal dispersion regime of BBO through a negative cascaded quadratic nonlinearity. Using pump wavelengths from 1.24 to 1.4 μm, dispersive waves are found from 1.9 to 2.2 μm, agreeing well with calculated resonant phasematching wavelengths due to degenerate four-wave mixing to the soliton. We also observe resonant radiation from nondegenerate four-wave mixing between the soliton and a probe wave,
which was formed by leaking part of the pump spectrum into the anomalous dispersion regime. We confirm the experimental results through simulations.

**General information**

State: Published  
Organisations: Department of Photonics Engineering  
Authors: Zhou, B. (Intern), Bache, M. (Intern)  
Pages: 4257-4260  
Publication date: 2015  
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Optics Letters  
Volume: 40  
Issue number: 18  
ISSN (Print): 0146-9592

**Ratings:**

BFI (2018): BFI-level 2  
Web of Science (2018): Indexed yes  
BFI (2017): BFI-level 2  
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597  
Web of Science (2017): Indexed yes  
BFI (2016): BFI-level 2  
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549  
Web of Science (2016): Indexed yes  
BFI (2015): BFI-level 2  
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53  
Web of Science (2015): Indexed yes  
BFI (2014): BFI-level 2  
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86  
Web of Science (2014): Indexed yes  
BFI (2013): BFI-level 2  
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95  
ISI indexed (2013): ISI indexed yes  
Web of Science (2013): Indexed yes  
BFI (2012): BFI-level 2  
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52  
ISI indexed (2012): ISI indexed yes  
Web of Science (2012): Indexed yes  
BFI (2011): BFI-level 2  
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69  
ISI indexed (2011): ISI indexed yes  
Web of Science (2011): Indexed yes  
BFI (2010): BFI-level 2  
Scopus rating (2010): SJR 2.637 SNIP 2.263  
Web of Science (2010): Indexed yes  
BFI (2009): BFI-level 1  
Scopus rating (2009): SJR 3.077 SNIP 2.658  
Web of Science (2009): Indexed yes  
BFI (2008): BFI-level 1  
Scopus rating (2008): SJR 3.354 SNIP 2.384  
Web of Science (2008): Indexed yes  
Scopus rating (2007): SJR 3.443 SNIP 2.157  
Web of Science (2007): Indexed yes  
Scopus rating (2006): SJR 3.126 SNIP 2.319  
Web of Science (2006): Indexed yes
In this Letter, general closed-form expressions for the average bit error rate in atmospheric optical links employing rate-adaptive channel coding are derived. To characterize the irradiance fluctuations caused by atmospheric turbulence, the Málaga or M distribution is employed. The proposed expressions allow us to evaluate the performance of atmospheric optical links employing channel coding schemes such as OOK-GSc, OOK-GSc, HHH(1,13), or vw-MPPM with different coding rates and under all regimes of turbulence strength. A hyper-exponential fitting technique applied to the conditional bit error rate is used in all cases. The proposed closed-form expressions are validated by Monte-Carlo simulations.
Highly efficient single-pass sum frequency generation by cascaded nonlinear crystals

The cascading of nonlinear crystals has been established as a simple method to greatly increase the conversion efficiency of single-pass second-harmonic generation compared to a single-crystal scheme. Here, we show for the first time that the technique can be extended to sum frequency generation, despite differences in the phase relations of the involved fields. An unprecedented 5.5 W of continuous-wave diffraction-limited green light is generated from the single-pass sum frequency mixing of two diode lasers in two periodically poled nonlinear crystals (conversion efficiency 50%). The technique is generally applicable and can be applied to any combination of fundamental wavelengths and nonlinear crystals.

**General information**

**State:** Published

**Organisations:** Department of Photonics Engineering, Diode Lasers and LED Systems, Department of Physics, Ferdinand-Braun-Institut

**Authors:** Hansen, A. K. (Intern), Andersen, P. E. (Intern), Jensen, O. B. (Intern), Sumpf, B. (Ekstern), Erbert, G. (Ekstern), Petersen, P. M. (Intern)
Infrared upconversion hyperspectral imaging

In this Letter, hyperspectral imaging in the mid-IR spectral region is demonstrated based on nonlinear frequency upconversion and subsequent imaging using a standard Si-based CCD camera. A series of upconverted images are acquired with different phase match conditions for the nonlinear frequency conversion process. From this, a sequence of monochromatic images in the 3.2-3.4 μm range is generated. The imaged object consists of a standard United States Air Force resolution target combined with a polystyrene film, resulting in the presence of both spatial and spectral information in the infrared image. (C) 2015 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, Optical Sensor Technology
Authors: Kehlet, L. M. (Intern), Tidemand-Lichtenberg, P. (Intern), Dam, J. S. (Intern), Pedersen, C. (Intern)
Pages: 938-941
Publication date: 2015
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 40
Issue number: 6
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Large-mode-area hybrid photonic crystal fiber amplifier at 1178 nm

Amplification of 1178 nm light is demonstrated in a large-mode-area single-mode ytterbium-doped hybrid photonic crystal fiber, relying on distributed spectral filtering of spontaneous emission at shorter wavelengths. An output power of 53 W is achieved with 29 dB suppression of parasitic lasing. Further power scaling is limited by parasitic lasing.

General information
State: Published
Organisations: Department of Photonics Engineering, Fiber Optics, Devices and Non-linear Effects, University of Electro-Communications, NKT Photonics A/S
Authors: Petersen, S. R. (Intern), Chen, M. (Ekstern), Shirakawa, A. (Ekstern), Olausson, C. B. T. (Ekstern), Alkeskjold, T. T. (Ekstern), Lægsgaard, J. (Intern)
Pages: 1741-1744
Publication date: 2015
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 40
Issue number: 8
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926 SNIP 1.685

Original language: English
Mid-IR femtosecond frequency conversion by soliton-probe collision in phase-mismatched quadratic nonlinear crystals

We show numerically that ultrashort self-defocusing temporal solitons colliding with a weak pulsed probe in the near-IR can convert the probe to the mid-IR. A near-perfect conversion efficiency is possible for a high effective soliton order. The near-IR self-defocusing soliton can form in a quadratic nonlinear crystal (beta-barium borate) in the normal dispersion regime due to cascaded (phase-mismatched) second-harmonic generation, and the mid-IR converted wave is formed in the anomalous dispersion regime between $\lambda = 2.2-2.4 \mu m$ as a resonant dispersive wave. This process relies on nondegenerate four-wave mixing mediated by an effective negative cross-phase modulation term caused by cascaded soliton-probe sum-frequency generation. (C) 2015 Optical Society of America
Mode resolved bend-loss analysis in few-mode fibers using spatially and spectrally resolved imaging

The increasing use of few-mode fibers for high-speed optical communication systems in space division multiplexing has created a need for mode resolved characterization of few-mode fibers. In this Letter, we present a new method to characterize the bend loss of the individual modes in a few-mode fiber. This procedure uses a simple setup for spatially and spectrally resolved imaging and allows the measurement of the bend loss of each and every guided mode at once. It does not require the use of mode converters in contrast to other methods. Results for graded-index two- and four-mode fibers are presented, together with comparisons against direct bend-loss measurements for the four-mode and standard single-mode fibers. (C) 2015 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, Nanophotonics Theory and Signal Processing, Fiber Optics, Devices and Non-linear Effects, OFS Optics
Authors: Leandro, L. (Intern), Grüner-Nielsen, L. E. (Ekstern), Rottwitt, K. (Intern)
Pages: 4583-4586
Publication date: 2015
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 40
Issue number: 20
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89  SJR 1.79  SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54  SJR 1.769  SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013  SNIP 1.53  CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429  SNIP 1.997  CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441  SNIP 2.058  CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577  SNIP 1.92  CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519  SNIP 2.453  CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637  SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077  SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354  SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443  SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126  SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245  SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523  SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725  SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571  SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776  SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157  SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926  SNIP 1.685
Original language: English
OPTICS, OPTICAL-FIBERS
DOIs:
10.1364/ol.40.004583
Nonlocal study of ultimate plasmon hybridization
Within our recently proposed generalized nonlocal optical response (GNOR) model, where nonlocal response is included by taking into account both convective and diffusive currents of the conduction electrons, we revisit the fundamental problem of an optically excited plasmonic dimer. We consider the transition from separated dimers via touching dimers to finally overlapping dimers. In particular, we focus on the touching case, showing a fundamental limit on the hybridization of the bonding plasmon modes due to nonlocality. Using transformation optics, we determine a simple analytical equation for the resonance energies. (C) 2015 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, Center for Nanostructured Graphene, Structured Electromagnetic Materials, University of Southern Denmark
Authors: Raza, S. (Intern), Wubs, M. (Intern), Bozhevolnyi, S. I. (Ekstern), Mortensen, N. A. (Intern)
Pages: 839-842
Publication date: 2015
Main Research Area: Technical/natural sciences

Publication Information
Journal: Optics Letters
Volume: 40
Issue number: 5
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Polarization switch of four-wave mixing in large mode area hybrid photonic crystal fibers

Degenerate spontaneous four-wave mixing is considered in a large mode area hybrid photonic crystal fiber. Numerical and experimental results show birefringence assisted four-wave mixing for a certain polarization state of the pump field. The parametric gain can be turned on and off by switching the polarization state of the pump field between the two principal axis of the hybrid photonic crystal fiber. (C) 2015 Optical Society of America
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926 SNIP 1.685
Original language: English
OPTICS, PARAMETRIC WAVELENGTH CONVERSION, AMPLIFIER
DOIs:
10.1364/OL.40.000487
Source: FindIt
Source-ID: 274398767
Publication: Research - peer-review › Journal article – Annual report year: 2015
Semi-analytical quasi-normal mode theory for the local density of states in coupled photonic crystal cavity-waveguide structures

We present and validate a semi-analytical quasi-normal mode (QNM) theory for the local density of states (LDOS) in coupled photonic crystal (PhC) cavity-waveguide structures. By means of an expansion of the Green's function on one or a few QNMs, a closed-form expression for the LDOS is obtained, and for two types of two-dimensional PhCs, with one and two cavities side-coupled to an extended waveguide, the theory is validated against numerically exact computations. For the single cavity, a slightly asymmetric spectrum is found, which the QNM theory reproduces, and for two cavities a non-trivial spectrum with a peak and a dip is found, which is reproduced only when including both the two relevant QNMs in the theory. In both cases, we find relative errors below 1% in the bandwidth of interest.
Speckle-based spectrometer
A novel spectrometer concept is analyzed and experimentally verified. The method relies on probing the speckle displacement due to a change in the incident wavelength. A rough surface is illuminated at an oblique angle, and the peak position of the covariance between the speckle patterns observed in the far field with the two wavelengths reveals the wavelength change. A spectral resolution of 100 Mhz is argued to be achievable.

General information
State: Published
Organisations: Department of Photonics Engineering, Diode Lasers and LED Systems, Optical Sensor Technology
Authors: Chakrabarti, M. (Intern), Jakobsen, M. L. (Intern), Hanson, S. G. (Intern)
Number of pages: 4
Pages: 3264-3267
Publication date: 2015
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 40
Issue number: 14
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
Supercontinuum generation in quadratic nonlinear waveguides without quasi-phase matching

Supercontinuum generation (SCG) is most efficient when the solitons can be excited directly at the pump laser wavelength. Quadratic nonlinear waveguides may induce an effective negative Kerr nonlinearity, so temporal solitons can be directly generated in the normal (positive) dispersion regime overlapping with common ultrafast laser wavelengths. There is no need for waveguide dispersion engineering. Here, we experimentally demonstrate SCG in standard lithium niobate (LN) waveguides without quasi-phase matching (QPM), pumped with femtosecond pulses in the normal dispersion regime. The observed large bandwidths (even octave spanning), together with other experimental data, indicate that
negative nonlinearity solitons are indeed excited, which is backed up by numerical simulations. The QPM-free design reduces production complexity, extends the maximum waveguide length, and limits undesired spectral resonances. Finally, nonlinear crystals can be used where QPM is inefficient or impossible, which is important for mid-IR SCG. QPM-free waveguides in mid-IR nonlinear crystals can support negative nonlinearity solitons, as these waveguides have a normal dispersion at the emission wavelengths of mid-IR ultrafast lasers. © 2015 Optical Society of America
In this Letter, we investigate the effects of viscoelasticity on both the strength and resonance wavelength of two fiber Bragg gratings (FBGs) inscribed in microstructured polymer optical fiber (mPOF) made of undoped PMMA. Both FBGs were inscribed under a strain of 1% in order to increase the material photosensitivity. After the inscription, the strain was released, and the FBGs spectra were monitored. We initially observed a decrease of the reflection down to zero after which it began to increase. After that, strain tests were carried out to confirm the results, and finally the gratings were monitored for a further 120 days, with a stable reflection response being observed beyond 50 days. (C) 2015 Optical Society of America
Ultra-compact broadband higher order-mode pass filter fabricated in a silicon waveguide for multimode photonics

An ultra-compact and broadband higher order-mode pass filter in a 1D photonic crystal silicon waveguide is proposed and experimentally demonstrated. The photonic crystal is designed for the lower order mode to work in the photonic band gap, while the higher order mode is located in the air band. Consequently, light on the lower order mode is prohibited to pass through the filter, while light on a higher order mode can be converted to a Bloch mode in the photonic crystal and pass through the filter with low insertion loss. As an example, we fabricate a similar to 15-μm long first-order-mode pass filter...
that filters out the fundamental mode and provides a measured insertion loss of similar to 1.8 dB for the first-order-mode pass signals. The extinction ratio is measured to be around 50 dB (with a variation of +/- 10 dB due to the detection limitation of the measurement setup) in the measured wavelength range from 1480 to 1580 nm. Additionally, calculations predict the extinction ratio to be larger than 50 dB in a 170 nm broad bandwidth. (C) 2015 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, Nanophotonic Devices, High-Speed Optical Communication
Authors: Guan, X. (Intern), Ding, Y. (Intern), Frandsen, L. H. (Intern)
Pages: 3893-3896
Publication date: 2015
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 40
Issue number: 16
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Ultrafast all-optical modulation using a photonic-crystal Fano structure with broken symmetry

We experimentally demonstrate ultrafast all-optical modulation using an ultracompact InP photonic-crystal Fano structure. In contrast to symmetric configurations previously considered, the use of a structure with broken symmetry in combination with a well-engineered Fano resonance is shown to suppress patterning effects as well as lower the energy consumption. These properties enable the achievement of error-free 10 Gbit/s modulation with low pump energy using realistic pseudorandom binary sequence patterns. At 20 Gbit/s, the bit error ratio remains well below the limit for forward error correction.

General information
State: Published
Organisations: Department of Photonics Engineering, Nanophotonics Theory and Signal Processing, High-Speed Optical Communication, Nanophotonic Devices
Authors: Yu, Y. (Intern), Hu, H. (Intern), Oxenløwe, L. K. (Intern), Yvind, K. (Intern), Mørk, J. (Intern)
Pages: 2357-2360
Publication date: 2015
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 40
Issue number: 10
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
We numerically investigate the influence of high-order dispersion (HOD) on temporal and spectral characteristics of microresonator-based optical frequency combs. Theoretical analysis based on the moment method associated with numerical simulations are utilized to study the comb evolution dynamics, showing that temporal shifts of steady-state intracavity solitons are induced by high-odd-order dispersion rather than high-even-order dispersion. The role of HOD on comb spectral envelopes is also elucidated through analyzing the intracavity dispersive wave generations. We further demonstrate that the spectral envelope of a broadband optical frequency comb can be engineered by using a cavity dispersion profile with multiple zero dispersion wavelengths. © 2014 Optical Society of America.
Calculation, normalization and perturbation of quasinormal modes in coupled cavity-waveguide systems

We show how one can use a non-local boundary condition, which is compatible with standard frequency domain methods, for numerical calculation of quasinormal modes in optical cavities coupled to waveguides. In addition, we extend the definition of the quasinormal mode norm by use of the theory of divergent series to provide a framework for modeling of optical phenomena in such coupled cavity-waveguide systems. As an example, we apply the framework to study perturbative changes in the resonance frequency and Q value of a photonic crystal cavity coupled to a defect waveguide.
In this Letter, we present a novel structure to realize photonics-assisted compressive sensing (CS) with optical integration. In the system, a spectrally sparse signal modulates a multiwavelength continuous-wave light and then is mixed with a random sequence in optical domain. The optical signal passes through a length of dispersive fiber, the dispersion amount of which is set to ensure that the group delay between the adjacent wavelength channels is equal to the bit duration of the applied random sequence. As a result, the detected signal is a delay-and-sum version of the randomly mixed signal, which is equivalent to the function of integration required in CS. A proof-of-concept experiment with four wavelengths, corresponding to a compression factor of 4, is demonstrated. More simulation results are also given to show the potential of the technique.
Dual-resonances approach to broadband cavity-assisted optical signal processing beyond the carrier relaxation rate

We propose and analyze a differential control scheme for cavity-enhanced optical signal processing devices based on carrier nonlinearities. The scheme relies on two optical cavities to increase the bandwidth beyond the limit given by the slowest carrier relaxation rate of the medium. Practical implementations are envisioned using photonic crystal cavities, and the controls may be electrical or optical in nature. (C) 2014 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, Nanophotonics Theory and Signal Processing
Authors: Heuck, M. (Intern), Kristensen, P. T. (Intern), Mørk, J. (Intern)
Pages: 3189-3192
Publication date: 2014
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 39
Issue number: 11
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Editorial: acceptance criteria and editorial procedures for Optics Letters.

Optics Letters Editors strive to provide timely reviews and decisions for authors while bringing top quality papers to the optics community. The purpose of this editorial is to explain Optics Letters’ acceptance criteria and editorial procedures. Our hope is that greater transparency concerning the decision-making process will increase understanding as well as acceptance of our criteria and procedures.

General information
State: Published
Extended parametric gain range in photonic crystal fibers with strongly frequency-dependent field distributions

The parametric gain range of a degenerate four-wave mixing process is determined in the undepleted pump regime. The gain range is considered with and without taking the mode field distributions of the four-wave mixing components into account. It is found that the mode field distributions have to be included to evaluate the parametric gain correctly in dispersion-tailored specialty fibers and that mode profile engineering can provide a way to increase the parametric gain range. (C) 2014 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, Fiber Optics, Devices and Non-linear Effects, NKT Photonics A/S
Authors: Petersen, S. R. (Intern), Alkeskjold, T. T. (Intern), Olausson, C. B. T. (Intern), Lægsgaard, J. (Intern)
Pages: 4891-4894
Publication date: 2014
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 39
Issue number: 16
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
Few-cycle solitons and supercontinuum generation with cascaded quadratic nonlinearities in unpoled lithium niobate ridge waveguides

Formation and interaction of few-cycle solitons in a lithium niobate ridge waveguide are numerically investigated. The solitons are created through a cascaded phase-mismatched second-harmonic generation process, which induces a dominant self-defocusing Kerr-like nonlinearity on the pump pulse. The inherent material self-focusing Kerr nonlinearity is overcome over a wide wavelength range, and self-defocusing solitons are supported from 1100 to 1900 nm, covering the whole communication band. Single cycle self-compressed solitons and supercontinuum generation spanning 1.3 octaves are observed when pumped with femtosecond nanojoule pulses at 1550 nm. The waveguide is not periodically poled, as quasi-phase-matching would lead to detrimental nonlinear effects impeding few-cycle soliton formation.
Fully etched apodized grating coupler on the SOI platform with −0.58 dB coupling efficiency

We design and fabricate an ultrahigh coupling efficiency (CE) fully etched apodized grating coupler on the silicon-on-insulator (SOI) platform using subwavelength photonic crystals and bonded aluminum mirror. Fabrication error sensitivity and coupling angle dependence are experimentally investigated. A record ultrahigh CE of −0.58 dB with a 3 dB bandwidth of 71 nm and low back reflection are demonstrated.
Low-noise mid-IR upconversion detector for improved IR-degenerate four-wave mixing gas sensing

We compare a nonlinear upconversion detector with a conventional cryogenic InSb detector for the detection of coherent infrared light showing near-shot-noise-limited performance in the upconversion system. The InSb detector is limited by dark noise, which results in a 500 times lower signal-to-noise ratio. The two detectors are compared for the detection of a coherent degenerate four-wave mixing (DFWM) signal in the mid-infrared, and applied to measure trace-level acetylene in a gas flow at atmospheric pressure, probing its fundamental rovibrational transitions. In addition to lower noise, the upconversion system provides image information of the signal, thus adding new functionality compared to standard point detection methods. We further show that the upconversion detectorsystem can be implemented as a simple replacement of the cryogenic detector.

General information
State: Published
In this Letter, we provide evidence suggesting that the main photosensitive mechanism of an undoped poly(methyl methacrylate)-based microstructured optical fiber under UV radiation at 325 nm is a competitive process of both photodegradation and polymerization. We found experimentally that increasing strain during photo-inscription leads to an increased photosensitivity, which is evidence of photodegradation. Likewise, refractive index change in the fiber was measured to be positive, which provides evidence for further polymerization of the material. Finally, we relate the data obtained to the spatial recording resolution of the samples. © 2014 Optical Society of America.
Plasmonic waveguides cladded by hyperbolic metamaterials

Strongly anisotropic media with hyperbolic dispersion can be used for claddings of plasmonic waveguides (PWs). In order to analyze the fundamental properties of such waveguides, we analytically study 1D waveguides arranged from a hyperbolic metamaterial (HMM) in a HMM-Insulator-HMM (HIH) structure. We show that HMM claddings give flexibility in designing the properties of HIH waveguides. Our comparative study on 1D PWs reveals that HIH-type waveguides can have a higher performance than MIM or IMI waveguides.
Remote wind sensing with a CW diode laser lidar beyond the coherence regime.

We experimentally demonstrate for the first time (to our knowledge) a coherent CW lidar system capable of wind speed measurement at a probing distance beyond the coherence regime of the light source. A side-by-side wind measurement was conducted on the field using two lidar systems with identical optical designs but different laser linewidths. While one system was operating within the coherence regime, the other was measuring at least 2.4 times the coherence range. The probing distance of both lidars is 85 m and the radial wind speed correlation was measured to be \( r^2 = 0.965 \) between the two lidars at a sampling rate of 2 Hz. Based on our experimental results, we describe a practical guideline for designing a wind lidar operating beyond the coherence regime.
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926 SNIP 1.685

Original language: English
DOIs:
10.1364/OL.39.004875
Source: FindIt
Source-ID: 269930035
Publication: Research - peer-review › Journal article – Annual report year: 2014

**Single-mode pumped high air-fill fraction photonic crystal fiber taper for high-power deep-blue supercontinuum sources**

Dispersion control with axially nonuniform photonic crystal fibers (PCFs) permits supercontinuum (SC) generation into the deep-blue from an ytterbium pump laser. In this Letter, we exploit the full degrees of freedom afforded by PCFs to fabricate a fiber with longitudinally increasing air-fill fraction and decreasing diameter directly on the draw-tower. We demonstrate SC generation extending down to 375 nm in one such monolithic fiber device that is single-mode at 1064 nm at the input end.

**General information**

State: Published
Organisations: Department of Photonics Engineering, Fiber Sensors and Supercontinuum Generation, NKT Photonics A/S
Authors: Sørensen, S. T. (Intern), Larsen, C. (Intern), Jakobsen, C. (Ekstern), Thomsen, C. L. (Ekstern), Bang, O. (Intern)
Pages: 1097-1100
Publication information
Journal: Optics Letters
Volume: 39
Issue number: 4
ISSN (Print): 0146-9592
Ratings:
  BFI (2018): BFI-level 2
  Web of Science (2018): Indexed yes
  BFI (2017): BFI-level 2
  Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
  Web of Science (2017): Indexed yes
  BFI (2016): BFI-level 2
  Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
  Web of Science (2016): Indexed yes
  BFI (2015): BFI-level 2
  Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
  Web of Science (2015): Indexed yes
  BFI (2014): BFI-level 2
  Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
  Web of Science (2014): Indexed yes
  BFI (2013): BFI-level 2
  Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
  ISI indexed (2013): ISI indexed yes
  Web of Science (2013): Indexed yes
  BFI (2012): BFI-level 2
  Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
  ISI indexed (2012): ISI indexed yes
  Web of Science (2012): Indexed yes
  BFI (2011): BFI-level 2
  Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
  ISI indexed (2011): ISI indexed yes
  Web of Science (2011): Indexed yes
  BFI (2010): BFI-level 2
  Scopus rating (2010): SJR 2.637 SNIP 2.263
  Web of Science (2010): Indexed yes
  BFI (2009): BFI-level 1
  Scopus rating (2009): SJR 3.077 SNIP 2.658
  Web of Science (2009): Indexed yes
  BFI (2008): BFI-level 1
  Scopus rating (2008): SJR 3.354 SNIP 2.384
  Web of Science (2008): Indexed yes
  Scopus rating (2007): SJR 3.443 SNIP 2.157
  Web of Science (2007): Indexed yes
  Scopus rating (2006): SJR 3.126 SNIP 2.319
  Web of Science (2006): Indexed yes
  Scopus rating (2005): SJR 3.245 SNIP 2.451
  Web of Science (2005): Indexed yes
  Scopus rating (2004): SJR 3.523 SNIP 2.726
  Web of Science (2004): Indexed yes
  Scopus rating (2003): SJR 3.725 SNIP 2.626
  Web of Science (2003): Indexed yes
  Scopus rating (2002): SJR 3.571 SNIP 2.415
Ultrafast all-optical clock recovery based on phase-only linear optical filtering

We report on a novel, efficient technique for all-optical clock recovery from RZ-OOK data signals based on spectral phase-only (all-pass) optical filtering. This technique significantly enhances both the recovered optical clock quality and energy efficiency in comparison with conventional amplitude optical filtering approaches using a Fabry-Perot filter. The proposed concept is validated through recovery of the optical clock from a 640 Gbit/s RZ-OOK data signal using a commercial linear optical waveshaper. (C) 2014 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, High-Speed Optical Communication, Institut National de la Recherche Scientifique, Technical University of Denmark, Beijing University of Posts and Telecommunications
Authors: Maram, R. (Intern), Kong, D. (Intern), Galili, M. (Intern), Oxenløwe, L. K. (Intern), Azana, J. (Ekstern)
Number of pages: 4
Pages: 2815-2818
Publication date: 2014
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 39
Issue number: 9
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Coupling of single quantum emitters to plasmons propagating on mechanically etched wires

We demonstrate the coupling of a single nitrogen vacancy center in a nanodiamond to propagating plasmonic modes of mechanically etched silver nanowires. The mechanical etch is performed on single crystalline silver nanoplates by the tip of an atomic force microscope cantilever to produce wires with pre-designed lengths. We show that single plasmon propagation can be obtained in these wires, thus making these structures a platform for quantum information processing.
Five-ring hollow-core photonic crystal fiber with 1.8 dB/km loss

A 19-cell hollow-core photonic crystal fiber reaching 1.8 ± 0.5 dB/km loss at 1530 nm is reported. Despite expanded corner holes in the first ring adjacent to the core, and only five cladding rings, the minimum loss is close to the previously published record of 1.7 dB/km at a comparable wavelength, achieved in a fiber with seven cladding rings. Since each additional cladding ring requires a significant increase in fabrication time and complexity, it is highly desirable to use as few as possible while still achieving low loss. Modeling results confirm that further reducing cladding deformations would yield only a small decrease in loss. This demonstrates that loss comparable to the previously demonstrated lowest-loss bandgap fibers can be achieved with fiber structures that are significantly simpler and faster to fabricate. © 2013 Optical Society of America.
Frequency noise in frequency swept fiber laser

This Letter presents a measurement of the spectral content of frequency shifted pulses generated by a lightwave synthesized frequency sweeper. We found that each pulse is shifted in frequency with very high accuracy. We also discovered that noise originating from light leaking through the acousto-optical modulators and forward propagating Brillouin scattering appear in the spectrum. © 2013 Optical Society of America.
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes

BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes

BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes

BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes

BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes

BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes

BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes

BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes

BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes

BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes

BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes

Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes

Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes

Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes

Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes

Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes

Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes

Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes

Scopus rating (2000): SJR 4.157 SNIP 1.716
Highly photosensitive polymethyl methacrylate microstructured polymer optical fiber with doped core

In this Letter, we report the fabrication of a highly photosensitive, microstructured polymer optical fiber using benzyl dimethyl ketal as a dopant, as well as the inscription of a fiber Bragg grating in the fiber. A refractive index change in the core of at least $3.2 \times 10^{-4}$ has been achieved, providing a grating with a strong transmission rejection of $-23 \text{dB}$ with an inscription time of only 13 min. The fabrication method has a big advantage compared to doping step index fiber since it enables doping of the fiber without using extra dopants to compensate for the index reduction in the core introduced by the photosensitive agent.
How long wavelengths can one extract from silica-core fibers?

The generation of wavelengths above 3 μm by nonlinear processes in short silica photonic crystal fibers is investigated numerically. It was found that wavelengths in the 3–3.5 μm range may be generated quite efficiently in centimeter-long fiber pieces when pumping with femtosecond pulses in the 1.55–2 μm range. Wavelengths in the range of 3.5–4 μm can in principle be generated, but these require shorter fiber lengths for efficient extraction. The results indicate that useful 3 μm sources may be fabricated with existing silica-based fiber technology.

General information
State: Published
Organisations: Department of Photonics Engineering, Fiber Optics, Devices and Non-linear Effects, University of Illinois
Improved switching using Fano resonances in photonic crystal structures

We present a simple and robust structure for realizing asymmetric Fano transmission characteristics in photonic crystal waveguide-cavity structures. The use of Fano resonances for optical switching is analyzed using temporal coupled mode theory in combination with three-dimensional finite difference time domain simulations taking into account the signal bandwidth. The results suggest a significant energy reduction by employing Fano resonances compared to more well established Lorentzian resonance structures. A specific example of a Kerr nonlinearity shows an order of magnitude energy reduction.

General information
State: Published
Organisations: Department of Photonics Engineering, Nanophotonics Theory and Signal Processing, Solid Mechanics, Department of Mechanical Engineering
Authors: Heuck, M. (Intern), Kristensen, P. T. (Intern), Elesin, Y. (Intern), Mørk, J. (Intern)
Pages: 2466-2468
Publication date: 2013
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 38
Issue number: 14
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
On the capacity of $M$-distributed atmospheric optical channels

In this Letter, closed-form expressions of ergodic capacity, outage probability, and outage rate are derived for an atmospheric optical communication link using intensity modulation and direct detection with unbounded optical wavefront propagating through a homogeneous and isotropic turbulent medium. The optical scintillation of the received signal is modeled with the recently proposed Málaga or M turbulence distribution. By taking advantage of this unifying statistical model, the expressions here presented are valid for all possible irradiance fluctuation conditions, leading to direct relationships between turbulence parameters and link capacity performance.

General information
State: Published
Organisations: University of Malaga
Pages: 3984-3987
Publication date: 2013
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 38
Issue number: 20
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Quantum-enhanced micromechanical displacement sensitivity

We report on a hitherto unexplored application of squeezed light: for quantum-enhancement of mechanical transduction sensitivity in microcavity optomechanics. Using a toroidal silica microcavity, we experimentally demonstrate measurement of the transduced phase modulation signal in the frequency range 4–5.8 MHz with a sensitivity $-0.72(\pm 0.01)$ dB below the shot noise level. This is achieved for resonant probing in the highly undercoupled regime, by preparing the probe in a weak coherent state with phase squeezed vacuum states at sideband frequencies.
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926 SNIP 1.685
Original language: English
Homodyning, Squeezed states, Microcavities, Optomechanics
Electronic versions:
ol_38_9_1413.pdf
DOIs:
10.1364/OL.38.001413

Bibliographical note
This paper was published in Optics Letters and is made available as an electronic reprint with the permission of OSA. The paper can be found at the following URL on the OSA website: http://www.opticsinfobase.org/ol/abstract.cfm?uri=ol-38-9-1413. Systematic or multiple reproduction or distribution to multiple locations via electronic or other means is prohibited and is subject to penalties under law.
Source: RIS
Source-ID: urn:E4899B8C0E4A9C62FD12652FE2585B8
Publication: Research - peer-review > Journal article – Annual report year: 2013
Reducing disorder-induced losses for slow light photonic crystal waveguides through Bloch mode engineering

We present theory and measurements of disorder-induced losses for low loss 1.5 mm long slow light photonic crystal waveguides. A recent class of dispersion engineered waveguides increases the bandwidth of slow light and shows lower propagation losses for the same group index. Our theory and experiments explain how Bloch mode engineering can substantially reduce scattering losses for the same slow light group velocity regime.

General information
State: Published
Organisations: Department of Photonics Engineering, Nanophotonics Theory and Signal Processing, Queen's University, Thales Research and Technology
Authors: Mann, N. (Ekstern), Combrié, S. (Ekstern), Colman, P. (Intern), Patterson, M. (Ekstern), De Rossi, A. (Ekstern), Hughes, S. (Ekstern)
Pages: 4244-4247
Publication date: 2013
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 38
Issue number: 20
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Simultaneous dual wavelength eye-tracked ultrahigh resolution retinal and choroidal optical coherence tomography

We demonstrate an optical coherence tomography device that simultaneously combines different novel ultrabroad bandwidth light sources centered in the 800 and 1060 nm regions, operating at 66 kHz depth scan rate, and a confocal laser scanning ophthalmoscope-based eye tracker to permit motion-artifact-free, ultrahigh resolution and high contrast retinal and choroidal imaging. The two wavelengths of the device provide the complementary information needed for diagnosis of subtle retinal changes, while also increasing visibility of deeper-lying layers to image pathologies that include opaque media in the anterior eye segment or eyes with increased choroidal thickness.
Ultradilithium-efficiency apodized grating coupler using fully etched photonic crystals

We present an efficient method to design apodized grating couplers with Gaussian output profiles for efficient coupling between standard single mode fibers and silicon chips. An apodized grating coupler using fully etched photonic crystal holes on the silicon-on-insulator platform is designed, and fabricated in a single step of lithography and etching. An ultralow coupling loss of $-1.74\times10^{-6}$ dB (67% coupling efficiency) with a 3$\lambda$ bandwidth of 60$\lambda$nm is experimentally measured.

General information
State: Published
Organisations: Department of Photonics Engineering, Nanophotonic Devices, High-Speed Optical Communication, Diode Lasers and LED Systems
Authors: Ding, Y. (Intern), Ou, H. (Intern), Peucheret, C. (Intern)
Pages: 2732-2734
Publication date: 2013
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 38
Issue number: 15
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
We propose and demonstrate a polarization splitter and rotator (PSR) built on a silicon-on-insulator platform. The PSR is constructed with a tapered waveguide followed by a 2×2 multimode interferometer and can be simply fabricated in a single lithography and etching step. A low insertion loss (<2.5 dB with minimum insertion loss of 0.6 dB) and a low polarization crosstalk (<−12 dB) over a wide operation bandwidth (∼100 nm) with a large fabrication tolerance (>50 nm) are experimentally demonstrated.
All-fiber femtosecond Cherenkov radiation source

An all-fiber femtosecond source of spectrally isolated Cherenkov radiation is reported, to the best of our knowledge, for the first time. Using a monolithic, self-starting femtosecond Yb-doped fiber laser as the pump source and the combination of photonic crystal fibers as the wave-conversion medium, we demonstrate milliwatt-level, stable, and tunable Cherenkov radiation at visible wavelengths 580–630 nm, with pulse duration of sub-160-fs, and the 3 dB spectral bandwidth not exceeding 36 nm. Such an all-fiber Cherenkov radiation source is promising for practical applications in biophotonics such as bioimaging and microscopy.
We demonstrate that a broadband enhancement of spontaneous emission can be achieved within a photonic-plasmonic structure. The structure can strongly modify the spontaneous emission by exciting plasmonic modes. Because of the excited plasmonic modes, an enhancement up to 30 times is observed, leading to a 4 times broader emission spectrum. The reflectance measurement and the finite-difference time-domain simulation are carried out to support these results.
Closed-form BER analysis of variable weight MPPM coding under gamma-gamma scintillation for atmospheric optical communications

In this paper, the performance of the variable weight multiple pulse-position modulation (MPPM) coding technique in an atmospheric optical communication environment under gamma-gamma optical scintillation is analyzed, proposing a closed-form expression for the average bit error rate (BER). This study is based on a hyperexponential fitting of the conditional BER in absence of turbulence fluctuations, leading to closed-form expressions that characterize the behavior of this nonlinear coding scheme. Finally, conditional and average BER expressions proposed here are corroborated with Monte Carlo simulations results.

General information
State: Published
Organisations: University of Malaga
Pages: 719-721
Publication date: 2012
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 37
Issue number: 4
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
Compact dipole nanoantenna coupler to plasmonic slot waveguide.

Optical nanoantennas can be used for coupling radiation to or from waveguides in analogy to micro- and radio-wave systems. In this letter we provide a systematic description of the design approaches for a coupler to a plasmonic slot waveguide in the telecom range around 1.55 µm with realistic excitation from a lensed optical fiber. We show that the best coupling efficiency of 26% can be achieved by utilizing a dipole antenna with side and bottom reflectors, and such coupling efficiency is 185 times larger than for the bare waveguide. The nanoantenna coupler provides a compact interface between an optical fiber and a plasmonic slot waveguide for future optical integrated circuits.
CW-lasing and amplification in Tm$^{3+}$-doped photonic crystal fiber rod

We report lasing and amplification in a rod type thulium-doped photonic crystal fiber with 80 nm core diameter. The rod is pumped with a 793 nm laser diode and produces more than 20 W output power at a beam quality $M^2 < 1.3$. The laser/amplifier has a slope efficiency of 27.8%/20.1% relative to absorbed pump power with a lasing threshold at 28.6 W. The output wavelength in the lasing configuration can be tuned over 180 nm from 1810-1990 nm.
Dynamically tunable optical bottles from an optical fiber

Optical fibers have long been used to impose spatial coherence to shape free-space optical beams. Recent work has shown that one can use higher order fiber modes to create more exotic beam profiles. We experimentally generate optical bottles from Talbot imaging in the coherent superposition of two fiber modes excited with long period gratings, and obtain a 28 μm × 6 μm bottle with controlled contrast up to 10.13 dB. Our geometry allows for phase tuning of one mode with respect to the other, which enables us to dynamically move the bottle in free space.

General information
Efficient concept for generation of diffraction-limited green light by sum-frequency generation of spectrally combined tapered diode lasers

In order to increase the power of visible diode laser systems in an efficient manner, we propose spectral beam combining with subsequent sum-frequency generation. We show that this approach, in comparison with second harmonic generation of single emitters, can enhance the available power significantly. By combining two distributed Bragg reflector tapered diode lasers we achieve a 2.5–3.2 fold increase in power and a maximum of 3.9 W of diffraction-limited green light. At this power level, green diode laser systems have a high application potential, e.g., within the biomedical field. Our concept can be expanded combining multiple diode lasers to increase the power even further.
Enhanced deterministic phase retrieval using a partially developed speckle field

A technique for enhanced deterministic phase retrieval using a partially developed speckle field (PDSF) and a spatial light modulator (SLM) is demonstrated experimentally. A smooth test wavefront impinges on a phase diffuser, forming a PDSF that is directed to a 4f setup. Two defocused speckle intensity measurements are recorded at the output plane corresponding to axially-propagated representations of the PDSF in the input plane. The speckle intensity measurements are then used in a conventional transport of intensity equation (TIE) to reconstruct directly the test wavefront. The PDSF in our technique increases the dynamic range of the axial intensity derivative for smooth phase objects, resulting in a more robust solution to the TIE. The SLM setup enables a fast and accurate recording of speckle intensity. Experimental results are in good agreement with those obtained using the iterative phase retrieval and digital holographic methods of wavefront reconstruction.
Field performance of an all-semiconductor laser coherent Doppler lidar

We implement and test what, to our knowledge, is the first deployable coherent Doppler lidar (CDL) system based on a compact, inexpensive all-semiconductor laser (SL). To demonstrate the field performance of our SL-CDL remote sensor, we compare a 36 h time series of averaged radial wind speeds measured by our instrument at an 80 m distance to those simultaneously obtained from an industry-standard sonic anemometer (SA). An excellent degree of correlation (R^2=0.994 and slope=0.996) is achieved from a linear regression analysis of the CDL versus SA wind speed data. The lidar system is capable of providing high data availability, ranging from 85% to 100% even under varying outdoor (temperature and humidity) conditions during the test period. We also show the use of our SL-CDL for monitoring the dependence of aerosol backscatter on relative humidity. This work points to the feasibility of a more general class of low-cost, portable remote sensors based on all-SL emitters for applications that require demanding laser stability and coherence.
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926 SNIP 1.685
Original language: English
Electronic versions:
76883d01.pdf
DOIs:
10.1364/OL.37.002277

Bibliographical note
This paper was published in Optics Letters and is made available as an electronic reprint with the permission of OSA. The paper can be found at the following URL on the OSA website: http://www.opticsinfobase.org/ol/abstract.cfm?URI=ol-37-12-2277. Systematic or multiple reproduction or distribution to multiple locations via electronic or other means is prohibited and is subject to penalties under law.
**Generalized effective mode volume for leaky optical cavities**

We show explicitly how the commonly adopted prescription for calculating effective mode volumes is wrong and leads to uncontrolled errors. Instead, we introduce a generalized mode volume that can be easily evaluated based on the mode calculation methods typically applied in the literature, and which allows one to compute the Purcell effect and other interesting optical phenomena in a rigorous and unambiguous way.

**General information**

State: Published
Organisations: Department of Photonics Engineering, Nanophotonics Theory and Signal Processing, Queen's University
Authors: Kristensen, P. T. (Intern), Van Vlack, C. (Ekstern), Hughes, S. (Ekstern)
Pages: 1649-1651
Publication date: 2012
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Optics Letters
Volume: 37
Issue number: 10
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Higher-order Kerr effect and harmonic cascading in gases

The higher-order Kerr effect (HOKE) has recently been advocated to explain measurements of the saturation of the nonlinear refractive index in gases. Here we show that cascaded third-harmonic generation results in an effective fifth-order nonlinearity that is negative and significant. Higher-order harmonic cascading will also occur from the HOKE, and the cascading contributions may significantly modify the observed nonlinear index change. At lower wavelengths, cascading increases the HOKE saturation intensity, while for longer wavelengths cascading will decrease the HOKE saturation intensity.

Bibliographical note
This paper was published in Optics Letters and is made available as an electronic reprint with the permission of OSA. The paper can be found at the following URL on the OSA website: http://www.opticsinfobase.org/ol/abstract.cfm?uri=ol-37-10-1649. Systematic or multiple reproduction or distribution to multiple locations via electronic or other means is prohibited and is subject to penalties under law.

Source: dtu
Source-ID: n::oai:DTIC-ART:swets\364861794\::17320
Publication: Research - peer-review › Journal article – Annual report year: 2012

Higher-order Kerr effect and harmonic cascading in gases

The higher-order Kerr effect (HOKE) has recently been advocated to explain measurements of the saturation of the nonlinear refractive index in gases. Here we show that cascaded third-harmonic generation results in an effective fifth-order nonlinearity that is negative and significant. Higher-order harmonic cascading will also occur from the HOKE, and the cascading contributions may significantly modify the observed nonlinear index change. At lower wavelengths, cascading increases the HOKE saturation intensity, while for longer wavelengths cascading will decrease the HOKE saturation intensity.

General information
State: Published
Organisations: Department of Photonics Engineering, Ultrafast Nonlinear Optics group, Friedrich-Schiller-Universität Jena
Authors: Bache, M. (Intern), Eilenberger, F. (Ekstern), Minardi, S. (Ekstern)
Pages: 4612-4614
Publication date: 2012
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 37
Issue number: 22
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926 SNIP 1.685
Original language: English
Electronic versions:
11C92d01.pdf
DAD68d01.pdf
Links:
http://arxiv.org/abs/1209.1487
Higher-order-mode fiber optimized for energetic soliton propagation

We describe the design optimization of a higher-order-mode (HOM) fiber for energetic soliton propagation at wavelengths below 1300 nm. A new HOM fiber is fabricated according to our design criteria. The HOM fiber is pumped at 1045 nm by an energetic femtosecond fiber laser. The soliton self-frequency shift process shifts the center wavelength of the soliton to 1085 nm. The soliton has a temporal duration of 216 fs and a pulse energy of 6.3 nJ. The demonstrated pulse energy is approximately six times higher than the previous record in a solid core fiber at wavelengths below 1300 nm.
High-resolution mid-IR spectrometer based on frequency upconversion

We demonstrate a novel approach for high-resolution spectroscopy based on frequency upconversion and postfiltering by means of a scanning Fabry-Perot interferometer. The system is based on sum-frequency mixing, shifting the spectral content from the mid-infrared to the near-visible region allowing for direct detection with a silicon-based CCD camera. This approach allows for low noise detection even without cooling of the detector. A setup is realized for the 3×10⁻³ cm⁻¹ regime with a spectral resolution of 0.2 nm using lithium niobate as the nonlinear material and mixing with a single-frequency 1064 nm laser. We investigate water vapor emission lines from a butane burner and compare the measured results to model data. The presented method we suggest to be used for real-time monitoring of specific gas lines and reference signals.

General information
State: Published
Organisations: Department of Photonics Engineering, Optical Sensor Technology
Authors: Hu, Q. (Intern), Dam, J. S. (Intern), Pedersen, C. (Intern), Tidemand-Lichtenberg, P. (Intern)
Pages: 5232-5234
Publication date: 2012
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 37
Issue number: 24
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Intermodal Čerenkov radiation in a higher-order-mode fiber
We demonstrate an intermodal Čerenkov radiation effect in a higher-order-mode (HOM) fiber with a mode crossing (i.e., two guided modes having the same propagation constant at the same wavelength). A frequency-shifted soliton in the vicinity of the mode-crossing wavelength emits a phase-matched dispersive wave in a different propagation mode. We develop a theoretical explanation for this nonlinear optical effect and demonstrate that the mode crossing in HOM fibers can be utilized to achieve simultaneous wavelength and mode conversion; the strength of this intermodal nonlinear interaction can be tuned by controlled fiber bending.
Nineteen-port photonic lantern with multimode delivery fiber

We demonstrate efficient multimode (MM) to single-mode (SM) conversion in a 19-port photonic lantern with a 50 μm core MM delivery fiber. The photonic lantern can be used within the field of astrophotonics for coupling MM starlight to an ensemble of SM fibers in order to perform fiber-Bragg-grating-based spectral filtering. An MM delivery fiber spliced to the photonic lantern offers the advantage that the delivery fiber guides the light from the focal plane of the telescope to the splitter. Therefore, it is no longer necessary to have the splitter mounted directly in the focal plane of the telescope. The coupling loss from a 50 μm core MM fiber to an ensemble of 19 SM fibers and back to a 50 μm core MM fiber is below 1.1 dB.

General information

State: Published
Organisations: Fibers & Nonlinear Optics, Fiber Optics, Devices and Non-linear Effects, Department of Photonics Engineering, NKT Photonics A/S, University of Sydney, Australian Astronomical Observatory
Authors: Noordegraaf, D. (Intern), Skovgaard, P. M. W. (Intern), Sandberg, R. K. (Ekstern), Maack, M. D. (Ekstern), Bland-Hawthorn, J. (Ekstern), Lawrence, J. S. (Ekstern), Lægsgaard, J. (Intern)
Pages: 452-454
Publication date: 2012
Main Research Area: Technical/natural sciences

Publication information

Journal: Optics Letters
Volume: 37
Issue number: 4
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926 SNIP 1.685
Original language: English
Electronic versions:
ol_37_4_452.pdf
DOIs:
10.1364/OL.37.000452
Nonlinear fiber-optic strain sensor based on four-wave mixing in microstructured optical fiber

We demonstrate a nonlinear fiber-optic strain sensor, which uses the shifts of four-wave mixing Stokes and anti-Stokes peaks caused by the strain-induced changes in the structure and refractive index of a microstructured optical fiber. The sensor thus uses the inherent nonlinearity of the fiber and does not require any advanced post-processing of the fiber. Strain sensitivity of -0.23 pm/με is achieved experimentally and numerical simulations reveal that for the present fiber the sensitivity can be increased to -4.46 pm/με by optimizing the pump wavelength and power.

Bibliographical note
This paper was published in Optics Letters and is made available as an electronic reprint with the permission of OSA. The paper can be found at the following URL on the OSA website: http://www.opticsinfobase.org/ol/abstract.cfm?uri=ol-37-4-452. Systematic or multiple reproduction or distribution to multiple locations via electronic or other means is prohibited and is subject to penalties under law.

Source: dtu
Source-ID: n::oai:DTIC-ART:compendex/371041458::24959
Publication: Research - peer-review » Journal article – Annual report year: 2012

Nonlinear fiber-optic strain sensor based on four-wave mixing in microstructured optical fiber

We demonstrate a nonlinear fiber-optic strain sensor, which uses the shifts of four-wave mixing Stokes and anti-Stokes peaks caused by the strain-induced changes in the structure and refractive index of a microstructured optical fiber. The sensor thus uses the inherent nonlinearity of the fiber and does not require any advanced post-processing of the fiber. Strain sensitivity of -0.23 pm/με is achieved experimentally and numerical simulations reveal that for the present fiber the sensitivity can be increased to -4.46 pm/με by optimizing the pump wavelength and power.

General information
State: Published
Organisations: Fiber Sensors and Supercontinuum Generation, Department of Photonics Engineering, Max Planck Institute, Zhejiang University
Authors: Gu, B. (Intern), Yuan, S. W. (Intern), Frosz, M. H. (Ekstern), Zhang, A. P. (Ekstern), He, S. (Ekstern), Bang, O. (Intern)
Pages: 794-796
Publication date: 2012
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 37
Issue number: 5
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
Omnidirectional luminescence enhancement of fluorescent SiC via pseudoperiodic antireflective subwavelength structures

In the present work, an approach of fabricating pseudoperiodic antireflective subwavelength structures (ARS) on fluorescent SiC by using self-assembled etch mask is demonstrated. By applying the pseudoperiodic (ARS), the average surface reflectance at 6° incidence over the spectral range of 390-785 nm is dramatically suppressed from 20.5% to 1.62%, and the hydrophobic surface with a large contact angle of 98° is also achieved. The angle-resolved photoluminescence study presents a considerable omnidirectional luminescence enhancement with an integral intensity enhancement of 66.3% and a fairly preserved spatial emission pattern. © 2012 Optical Society of America.
Optical waveguide mode control by nanoslit-enhanced terahertz field

In this Letter we propose a scheme providing control over an optical waveguide mode by a terahertz (THz) wave. The scheme is based on an optimization of the overlap between the optical waveguide mode and the THz field, with the THz field strength enhanced by the presence of a metallic nanoslit surrounding the waveguide. We find an optimum balance between the optical mode attenuation and Kerr-induced change in the propagation constant. The criterion for a π/2-cumulative phase shift, for instance for application in a Mach–Zehnder interferometer configuration, requires 10kV/cm THz field, which in turn is estimated to result in a nonlinear change of the refractive index in the waveguide of 0.001. Our simulations prove that it is quite reasonable to observe the effect experimentally.

General information

State: Published
Organisations: Department of Photonics Engineering, Plasmonics and Metamaterials, Terahertz Technologies and Biophotonics
Authors: Novitsky, A. (Intern), Zalkovskij, M. (Intern), Malureanu, R. (Intern), Jepsen, P. U. (Intern), Lavrinenko, A. (Intern)
Pages: 3903-3905
Publication date: 2012
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 37
Issue number: 18
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
Polarization-maintaining higher-order mode fiber module with anomalous dispersion at 1 μm

This Letter demonstrates a polarization-maintaining higher-order mode fiber module that has anomalous dispersion at 1 μm. The group velocity dispersion of the module is measured, showing a split of the two polarization axes. The excellent polarization-maintaining properties of the relevant fiber modes for the higher-order mode fiber are likewise demonstrated employing a new simple method for the measurement of the beat length of higher-order modes at a single wavelength. The higher-order fiber module is intended for group velocity dispersion compensation.
Q-switched thulium-doped photonic crystal fiber laser

We report a novel, Tm-doped photonic crystal fiber (PCF) actively Q-switched oscillator that provides ~8.9 kW peak power with 435 μJ, 49 ns pulses at 10 kHz repetition rate at 2 μm wavelength. This fiber has a mode-field area >1000 μm², the largest of any flexible PCF providing diffraction-limited beam quality to the best of our knowledge. As an application, the oscillator is used as pump to generate >350 nm broadening in ~50 m of SMF-28 fiber.
Quantitative pupil analysis in stimulated emission depletion microscopy using phase retrieval.

The resolution attainable with stimulated emission depletion (STED) microscopy greatly depends on the quality of the STED laser focus. So far, visual inspection of a measured STED focus has been the only convenient means of gauging the source of aberrations. Here we describe a method, requiring no instrument modifications, for obtaining an equivalent to the complex pupil function at the back aperture of the objective and show that it provides quantitative information about aberration sources (including aberrations induced by the objective or sample). We show the accuracy of this field representation to be sufficient for reconstructing the STED focus in three dimensions and determining corrective steps.

General information
State: Published
Organisations: Department of Electrical Engineering, Biomedical Engineering, Yale University School of Medicine
Authors: Kromann, E. B. (Ekstern), Gould, T. J. (Ekstern), Juette, M. F. (Ekstern), Wilhjelm, J. E. (Intern), Bewersdorf, J. (Ekstern)
Surface-enhanced Raman spectroscopy: nonlocal limitations

Giant field enhancement and field singularities are a natural consequence of the commonly employed local-response framework. We show that a more general nonlocal treatment of the plasmonic response leads to new and possibly fundamental limitations on field enhancement with important consequences for our understanding of surface-enhanced Raman spectroscopy (SERS). The intrinsic length scale of the electron gas serves to smear out assumed field singularities, leaving the SERS enhancement factor finite, even for geometries with infinitely sharp features. For silver nanogroove structures, mimicked by periodic arrays of half-cylinders (up to 120 nm in radius), we find no enhancement factors exceeding 10 orders of magnitude (10^10).

General information
State: Published
Organisations: Department of Photonics Engineering, Structured Electromagnetic Materials, Department of Micro- and Nanotechnology, Theoretical Nanotechnology, Center for Electron Nanoscopy, University of Southern Denmark
Pages: 2538-2540
Publication date: 2012
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 37
Issue number: 13
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
We investigate the impact of cascaded third harmonic generation and the intrinsic $n^4$ material nonlinearity on the propagation of ultrashort pulses in noble-gas filled Kagome fibers. We show that the pressure tunability of the cascade allows for the implementation of temporal switching. We also investigate the relative strengths of both effects and show their ratio to be pressure tunable.
Thermally induced mode coupling in rare-earth doped fiber amplifiers

We present a simple semianalytical model of thermally induced mode coupling in multimode rare-earth doped fiber amplifiers. The model predicts that power can be transferred from the fundamental mode to a higher-order mode when the operating power exceeds a certain threshold, and thus provides an explanation of recently reported mode instability in such fiber amplifiers under high average-power operation. We apply our model to a simple step-index fiber design, and investigate how the power threshold depends on various design parameters of the fiber.
We present a new multimode dispersion measurement technique based on the time-of-flight method. The modal delay and group velocity dispersion of all excited modes in a few-mode fiber can be measured simultaneously by a tunable pulsed laser and a high speed sampling oscilloscope. A newly designed higher-order-mode fiber with large anomalous dispersion in the LP02 mode has been characterized using this method, and experimental results are in good agreement with the designed dispersion values. The demonstrated technique is significantly simpler to implement than the existing frequency-domain or interferometry-based methods.
Compression of fiber supercontinuum pulses to the Fourier-limit in a high-numerical-aperture focus

A multiphoton intrapulse interference phase scan (MIIPS) adaptively and automatically compensates the combined phase distortion from a fiber supercontinuum source, a spatial light modulator pulse shaper, and a high-NA microscope objective, allowing Fourier-transform-limited compression of the supercontinuum pulses at the focus of the objective. A second-harmonic-generation-based method is employed to independently validate the transform-limited compression. The compressed pulses at the focus of the objective have a tunable duration of 10.8–38.9 fs (FWHM), a central wavelength of ∼1020nm, an average power of 18–70mW, and a repetition rate of 76MHz, permitting the application of this source to nonlinear optical microscopy and coherently controlled microspectroscopy.
Demultiplexing of OTDM-DPSK signals based on a single semiconductor optical amplifier and optical filtering

We propose and demonstrate the use of a single semiconductor optical amplifier (SOA) and optical filtering to time demultiplex tributaries from an optical time division multiplexing-differential phase shift keying (OTDM-DPSK) signal. The scheme takes advantage of the fact that phase variations added to the target channel by cross-phase modulation from the control signal are effectively subtracted in the differential demodulation scheme employed for DPSK signals. Demultiplexing from 80 to 40 Gbit/s is demonstrated with moderate power penalty using an SOA with recovery time twice as long as the bit period at 80 Gbit/s. Large dynamic ranges for the input power and SOA current are experimentally
demonstrated. The scheme is expected to be scalable toward higher bit rates. © 2011 Optical Society of America.
We propose an approach to generate ultrawideband (UWB) pulses with tunable high-speed modulation based on pulse compression. Flexible generation of up to a record 5 Gbits/s on-off keying impulse radio UWB signals are successfully demonstrated as well. We also investigate 5 Gbits/s on-off keying bit-error-rate (BER) performance after 40km single mode fiber transmission by employing a digital signal processing receiver, and the BER below forward error correction limit is achieved.
Effect of multiphoton absorption and free carriers in slow-light photonic crystal waveguides

We examine the effects of multiphoton absorption, free carriers, and disorder-induced linear scattering in slow-light photonic crystal waveguides. We derive an analytic formulation for self-phase modulation including the group velocity scaling of the nonlinear phase shift in materials limited by three-photon absorption as a representative nonlinear process. We investigate the role of free carriers and derive an approximate critical intensity at which these effects begin to strongly modify the optical field. This critical intensity is employed to determine an optimal group index for the self-phase
modulation in the slow-light devices. These observations are confirmed with numerical modeling.
Efficient and compact TE-TM polarization converter built on silicon-on-insulator platform with a simple fabrication process

An efficient TE-TM polarization converter built on a silicon-on-insulator nanophotonic platform is demonstrated. The strong cross-polarization coupling effect in air-cladded photonic-wire waveguides is employed to realize the conversion. A peak TE-TM coupling efficiency of 87% (-0.6 dB insertion loss) is measured experimentally. A polarization conversion efficiency of >92% with an overall insertion loss of <= 1.6 dB is obtained in a wavelength range of 40nm. The proposed device is compact, with a total length of 44 μm and can be fabricated with one lithography and etching step. © 2011 Optical Society of America.

General information
State: Published
Organisations: Department of Photonics Engineering, Nanophotonic Devices, Nanophotonics Theory and Signal Processing
Authors: Liu, L. (Intern), Ding, Y. (Intern), Yvind, K. (Intern), Hvam, J. M. (Intern)
Pages: 1059-1061
Publication date: 2011
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 36
Issue number: 7
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
Efficient parametric interactions in a low loss GaInP photonic crystal waveguide

We describe time domain characterizations of dynamic four-wave mixing in a low loss modified W1 GaInP photonic crystal waveguide. Using 32 ps wide pump pulses with peak powers of up to 1.1W we achieved a very large conversion efficiency of 76.8 dB as well as a 1.3 dB parametric gain experienced by a weak CW probe signal. Time domain simulations confirm quantitatively all the measured results.

General information
State: Published
Organisations: Department of Photonics Engineering, Technion-Israel Institute of Technology, Thales Research and Technology
Authors: Cestier, I. (Ekstern), Willinger, A. (Ekstern), Colman, P. (Intern), Combríe, S. (Ekstern), Lehoucq, G. (Ekstern), De Rossi, A. (Ekstern), Eisenstein, G. (Ekstern)
Pages: 3936-3938
<table>
<thead>
<tr>
<th>Year</th>
<th>BFI Rating</th>
<th>Scopus Rating</th>
<th>Web of Science Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>BFI-level 2</td>
<td>SJR 2.013 SNIP 1.53 CiteScore 3.53</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2017</td>
<td>BFI-level 2</td>
<td>SJR 2.429 SNIP 1.997 CiteScore 3.86</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2016</td>
<td>BFI-level 2</td>
<td>SJR 2.441 SNIP 2.058 CiteScore 3.95</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2015</td>
<td>BFI-level 2</td>
<td>SJR 2.519 SNIP 2.453 CiteScore 3.69</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2014</td>
<td>BFI-level 2</td>
<td>SJR 2.577 SNIP 1.92 CiteScore 3.52</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2013</td>
<td>BFI-level 2</td>
<td>SJR 2.637 SNIP 2.263</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2012</td>
<td>BFI-level 2</td>
<td>SJR 3.077 SNIP 2.658</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2011</td>
<td>BFI-level 2</td>
<td>SJR 3.519 SNIP 2.453 CiteScore 3.69</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2010</td>
<td>BFI-level 2</td>
<td>SJR 3.544 SNIP 2.384</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2009</td>
<td>BFI-level 2</td>
<td>SJR 3.443 SNIP 2.157</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2008</td>
<td>BFI-level 2</td>
<td>SJR 3.126 SNIP 2.319</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2007</td>
<td>BFI-level 2</td>
<td>SJR 3.245 SNIP 2.451</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2006</td>
<td>BFI-level 2</td>
<td>SJR 3.523 SNIP 2.726</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2005</td>
<td>BFI-level 1</td>
<td>SJR 3.725 SNIP 2.626</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2004</td>
<td>BFI-level 1</td>
<td>SJR 3.571 SNIP 2.415</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2003</td>
<td>BFI-level 1</td>
<td>SJR 3.354 SNIP 2.384</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2002</td>
<td>BFI-level 1</td>
<td>SJR 3.443 SNIP 2.157</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2001</td>
<td>BFI-level 1</td>
<td>SJR 3.126 SNIP 2.319</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2000</td>
<td>BFI-level 1</td>
<td>SJR 3.245 SNIP 2.451</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>1999</td>
<td>BFI-level 1</td>
<td>SJR 3.523 SNIP 2.726</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>1998</td>
<td>BFI-level 1</td>
<td>SJR 3.725 SNIP 2.626</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>1997</td>
<td>BFI-level 1</td>
<td>SJR 3.571 SNIP 2.415</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>1996</td>
<td>BFI-level 1</td>
<td>SJR 3.354 SNIP 2.384</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>1995</td>
<td>BFI-level 1</td>
<td>SJR 3.443 SNIP 2.157</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>1994</td>
<td>BFI-level 1</td>
<td>SJR 3.126 SNIP 2.319</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>1993</td>
<td>BFI-level 1</td>
<td>SJR 3.245 SNIP 2.451</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>1992</td>
<td>BFI-level 1</td>
<td>SJR 3.523 SNIP 2.726</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>1991</td>
<td>BFI-level 1</td>
<td>SJR 3.725 SNIP 2.626</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>1990</td>
<td>BFI-level 1</td>
<td>SJR 3.571 SNIP 2.415</td>
<td>Indexed yes</td>
</tr>
</tbody>
</table>
Engineering the plasmon resonance of large area bimetallic nanoparticle films by laser nanostructuring for chemical sensors

Large area fabrication of metal alloy nanoparticles with tunable surface plasmon resonances on low-cost substrates is reported. A UV excimer laser was used to anneal 5nm thick Ag Au bilayer films deposited with different composition ratios to create alloy nanoparticles. These engineered surfaces are used to investigate how the wavelength of the surface plasmon resonance affects the optical detection capability of chemical species by surface-enhanced Raman spectroscopy.

© 2011 Optical Society of America
We present the enhanced transduction of a photonic crystal dye laser for gas sensing via deposition of an additional swelling polymer film. Device operation involves swelling of the polymer film during exposure to specific gases, leading to a change in total effective refractive index. Experimental results show an enhancement of 16.09 dB in sensing ethanol vapor after deposition of a polystyrene film. We verify different responses of the polystyrene film when exposed to either ethanol vapor or increased humidity, indicating selectivity. The concept is generic and, in principle, straightforward in its application to other intracavity-based detection schemes to enable gas sensing. © 2011 Optical Society of America.
Experimental investigation of relative timing jitter in passively synchronized Q-switched lasers

Relative timing jitter between synchronized Q-switched lasers, or lack thereof, is important for stable sum-frequency generation. Experimental investigation of two passively synchronized lasers shows that the jitter is minimized when the free-running repetition rates of the two lasers are close to, but not exactly, matching. When the free-running repetition rates are matched, the jitter is significantly large. At the best operating point, the pulse-to-pulse period was 200 μs, while the relative jitter between the two lasers was 9 ns. If the effect of the master laser's pulse-to-pulse jitter is removed, the residual timing jitter between the two lasers was 6 ns, which corresponds to the lower limit set by pump power fluctuations and noise from spontaneous emission. © 2011 Optical Society of America.
General analytical expressions for the bit error rate of atmospheric optical communication systems

General analytical expressions are derived for the average bit error rate of an intensity modulation and direct detection link using unbounded optical wavefront with on-off keying signalling technique propagating under all possible irradiance fluctuation conditions. These expressions include in a single equation the link performance of most of the proposed statistical models derived until now.
High-power dual-wavelength external-Cavity diode laser based on tapered amplifier with tunable terahertz frequency difference

Tunable dual-wavelength operation of a diode laser system based on a tapered diode amplifier with double-Littrow external-cavity feedback is demonstrated around 800nm. The two wavelengths can be tuned individually, and the frequency difference of the two wavelengths is tunable from 0.5 to 5.0 THz. An output power of 1.54W is achieved with a frequency difference of 0.86 THz, the output power is higher than 1.3W in the 5.0 THz range of frequency difference, and the amplified spontaneous emission intensity is more than 20 dB suppressed in the range of frequency difference. To our knowledge, this is the highest output power from a dual-wavelength diode laser system operating with tunable terahertz frequency difference. © 2011 Optical Society of America.
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926 SNIP 1.685
Original language: English
Electronic versions:
0BA48d01.pdf
DOIs:
10.1364/OL.36.002626

Bibliographical note
This paper was published in Optics Letters and is made available as an electronic reprint with the permission of OSA. The paper can be found at the following URL on the OSA website: http://www.opticsinfobase.org/abstract.cfm?URI=ol-36-14-2626. Systematic or multiple reproduction or distribution to multiple locations via electronic or other means is prohibited and is subject to penalties under law.
Source: orbit
Source-ID: 282638
Publication: Research - peer-review › Journal article – Annual report year: 2011

Lasing in thulium-doped polarizing photonic crystal fiber
We describe lasing of a thulium-doped polarizing photonic crystal fiber. A 4m long fiber with 50 μm diameter core, 250 μm diameter cladding, and d/A ratio of 0.18 was pumped with a 793nm diode and produced a polarized output with a polarization extinction ratio (PER) of 15 dB and an M2 of <1:15. An intracavity polarizer and half-wave plate minimally increased the PER to 16 dB. The output power had 35% slope efficiency relative to the absorbed pump power. The maximum cw output power was limited to 4W due to the quantum defect heating of the fiber.

General information
State: Published
Organisations: CREOL, The College of Optics and Photonics, NKT Photonics A/S
Authors: Modsching, N. (Ekstern), Kadwani, P. (Ekstern), Sims, R. A. (Ekstern), Leick, L. (Ekstern), Shah, L. (Ekstern), Broeng, J. (Intern), Richardson, M. (Ekstern)
Pages: 3873-3875
Publication date: 2011
Mode field diameter preserving fiber tapers

centric dual-core fibers, which couple light from an inner core to an outer core through a taper. Fibers with a 6 μm MFD feedthrough and a 15 μm polarization maintaining feedthrough are demonstrated experimentally. Simulations of the MFD in the tapered dual-core fibers are also presented.

General information
State: Published
Organisations: Fiber Optics, Devices and Non-linear Effects, Department of Photonics Engineering, NKT Photonics A/S
Authors: Noordegraaf, D. (Intern), Maack, M. D. (Ekstern), Skovgaard, P. M. W. (Ekstern), Sørensen, M. H. (Ekstern), Broeng, J. (Intern), Lægsgaard, J. (Intern)
Pages: 4524-4526
Publication date: 2011
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 36
Issue number: 23
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
In this Letter, we propose a generic nonlinear coupling coefficient, \( \eta_{NL} \equiv \eta j \gamma / \beta^2 j_fiber2 = j \gamma / \beta^2 j_fiber1 \), which gives a quantitative measure for the efficiency of nonlinear matching of optical fibers by describing how a fundamental soliton couples from one fiber into another. Specifically, we use \( \eta_{NL} \) to demonstrate a significant soliton self-frequency shift of a fundamental soliton, and we show that nonlinear matching can take precedence over linear mode matching. The nonlinear coupling coefficient depends on both the dispersion (\( \beta^2 \)) and nonlinearity (\( \gamma \)), as well as on the power coupling efficiency \( \eta \). Being generic, \( \eta_{NL} \) enables engineering of general waveguide systems, e.g., for optimized Raman redshift or supercontinuum generation.
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 36
Issue number: 13
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Observation of parametric gain due to four-wave mixing in dispersion engineered GaInP photonic crystal waveguides

We investigate four-wave mixing (FWM) in GaInP 1.5mm long dispersion engineered photonic crystal waveguides. We demonstrate an 11nm FWM bandwidth in the CW mode and a conversion efficiency of -24 dB in the quasi-CW mode. For picosecond pump and probe pulses, we report a 3 dB parametric gain and nearly a -5 dB conversion efficiency at watt-level peak pump powers.
Optical switching and detection of 640 Gbits/s optical time-division multiplexed data packets transmitted over 50 km of fiber

We demonstrate 1 × 4 optical-packet switching with error-free transmission of 640 Gbits/s single-wavelength optical time-division multiplexed data packets including clock distribution and short pulse generation for optical time demultiplexing based on a cavityless pulse source. © 2011 Optical Society of America.

General information
State: Published
Organisations: High-Speed Optical Communication, Department of Photonics Engineering, Eindhoven University of Technology
Pages: 3473-3475
Publication date: 2011
Main Research Area: Technical/natural sciences
Optimization of hybrid imaging systems based on maximization of kurtosis of the restored point spread function

I propose a novel, but yet simple, no-reference, objective image quality measure based on the kurtosis of the restored point spread function. Using this measure, I optimize several phase masks for extended-depth-of-field in hybrid imaging systems and obtain results that are identical to optimization results based on full-reference image measures of restored images. In comparison with full-reference measures, the kurtosis measure is fast to compute and requires no images, noise distributions, or alignment of restored images, but only the signal-to-noise-ratio. © 2011 Optical Society of America.
Optimum fiber tapers for increasing the power in the blue-edge of a supercontinuum - group-acceleration matching

We demonstrate how the gradient of the tapering in a tapered fiber can significantly affect the trapping and blueshift of dispersive waves (DWs) by a soliton. By modeling the propagation of a fundamental 10 fs soliton through tapered fibers with varying gradients, it is shown that the soliton traps and blueshifts an increased fraction of the energy in its DW when the gradient is decreased. This is quantified by the group-acceleration mismatch between the soliton and DW at the entrance of the taper. These findings have direct implications for the achievable power in the blue edge of a supercontinuum generated in a tapered fiber and explain observations of a lack of power in the blue edge.

General information
State: Published
Organisations: Fiber Sensors and Supercontinuum Generation, Department of Photonics Engineering
Authors: Sørensen, S. T. (Intern), Judge, A. (Intern), Thomsen, C. L. (Ekstern), Bang, O. (Intern)
Pages: 816-818
Publication date: 2011
Main Research Area: Technical/natural sciences
Plasmonic metamaterial wave retarders in reflection by orthogonally oriented detuned electrical dipoles

We demonstrate that a pair of perpendicular electrical dipolar scatterers resonating at different frequencies can be used as a metamaterial unit cell to construct a nanometer-thin retarder in reflection, designing nanocross and nanobrick plasmonic configurations to function as reflecting quarter-wave plates at ∼1520 and 770nm, respectively. The design is corroborated experimentally with a monolayer of gold nanobricks, transforming linearly polarized incident radiation into circularly polarized radiation at ∼780nm.

© 2011 Optical Society of America.

General information
State: Published
Organisations: University of Southern Denmark, Politecnico di Milano
Authors: Pors, A. (Ekstern), Nielsen, M. G. (Ekstern), Valle, G. D. (Ekstern), Willatzen, M. (Intern), Albrektsen, O. (Ekstern), Bozhevolnyi, S. I. (Ekstern)
Pages: 1626-1628
Publication date: 2011
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 36
Issue number: 9
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
In this Letter we propose a novel (to our knowledge) porous-core honeycomb bandgap design. The holes of the porous core are the same size as the holes in the surrounding cladding, thereby giving the proposed fiber important manufacturing benefits. The fiber is shown to have a 0.35-THz-wide fundamental bandgap centered at 1.05 THz. The calculated minimum loss of the fiber is 0.25 dB/cm.
Surface-plasmon-polariton-induced suppressed transmission through ultrathin metal disk arrays
We report surface-plasmon-polariton-induced suppressed transmission through two-dimensional arrays of isolated metal disks with a thickness comparable to optical skin depth of the metal. A transmittance dip of −17.5 dB is achieved at the resonant wavelength of 1524 nm, compared to −12 dB for closed film. Coupling the light into the surface-plasmon polariton results in enhanced absorption, which is potentially interesting in solar cell applications.
Zeno effect and switching of solitons in nonlinear couplers.

The Zeno effect is investigated for soliton type pulses in a nonlinear directional coupler with dissipation. The effect consists in increase of the coupler transparency with increase of the dissipative losses in one of the arms. It is shown that localized dissipation can lead to switching of solitons between the arms. Power losses accompanying the switching can be fully compensated by using a combination of dissipative and active (in particular, parity-time-symmetric) segments.
We demonstrate 160Gbit/s return-to-zero (RZ) differential quaternary phase-shift keying (DQPSK) signal transmission over a 110km single-mode fiber by taking advantage of mid-span optical phase conjugation (OPC). The technique is based on nonlinear wavelength conversion by cascaded second harmonic and difference frequency generation in a Ti:PPLN waveguide. Error-free operation with a negligible optical signal-to-noise ratio penalty for the signal after the OPC transmission without and with polarization scrambling was achieved. The results also show the polarization insensitivity of the OPC system using a polarization diversity scheme.
Analytical theory of dark nonlocal solitons
We investigate properties of dark solitons in nonlocal materials with an arbitrary degree of nonlocality. We employ the variational technique and describe dark solitons, for the first time to our knowledge, in the whole range of degree of nonlocality.

General information
State: Published
Organisations: Fiber Sensors and Supercontinuum Generation, Department of Photonics Engineering, Shanghai University, Australian National University
Authors: Kong, Q. (Ekstern), Wang, Q. (Ekstern), Bang, O. (Intern), Krolikowski, W. (Ekstern)
Pages: 2152-2154
Publication date: 2010
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 35
Issue number: 13
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926 SNIP 1.685
Original language: English
Electronic versions:
pap2010_5[1].pdf
Broadband terahertz fiber directional coupler

We present the design of a short broadband fiber directional coupler for terahertz (THz) radiation and demonstrate a 3 dB coupler with a bandwidth of 0.6 THz centered at 1.4 THz. The broadband coupling is achieved by mechanically downdoping the cores of a dual-core photonic crystal fiber by microstructuring the cores. This is equivalent to chemical downdoping but is easier to realize experimentally.

General information

State: Published
Organisations: Fiber Sensors and Supercontinuum Generation, Department of Photonics Engineering, Manufacturing Engineering, Department of Mechanical Engineering, Terahertz Technologies and Biophotonics
Authors: Nielsen, K. (Intern), Rasmussen, H. K. (Intern), Jepsen, P. U. (Intern), Bang, O. (Intern)
Pages: 2879-2881
Publication date: 2010
Main Research Area: Technical/natural sciences

Publication information

Journal: Optics Letters
Volume: 35
Issue number: 17
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Concept for phase-to-intensity conversion in SOAs by facet reflections

All-optical conversion from phase-modulated signals to intensity-modulated signals is theoretically demonstrated in semiconductor optical amplifiers (SOAs). Large-signal and small-signal calculations show significant conversion responses appearing as a result of even minute reflections at the end mirrors of the SOA. It is discussed how reflected phase-modulated signals can lead to interference resulting in intensity fluctuations that are amplified by the gain in a SOA. The effect can be utilized for deliberate conversion between optical modulation formats.
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926 SNIP 1.685
Original language: English
Source: orbit
Source-ID: 262990
Publication: Research - peer-review › Journal article – Annual report year: 2010
An electrically tunable bandpass filter is designed and fabricated by integrating two solid-core photonic crystal fibers filled with different liquid crystals in a double silicon v-groove assembly. By separately controlling the driving voltage of each liquid-crystal-filled section, both the short-wavelength edge and the long-wavelength edge of the bandpass filter are tuned individually or simultaneously with the response time in the millisecond range.
Enhancing slow and fast light effects in quantum dot semiconductor waveguides through ultrafast dynamics

We show that ultrafast carrier dynamics plays an important role on slow and fast light effects based on coherent population oscillations in quantum dot semiconductor waveguides. Fast light in the gain regime and slow light in the absorption regime are found to be enhanced at frequencies beyond the usual limits of the carrier lifetime. The effects are investigated by a comprehensive model and shown to originate from non-equilibrium dynamics within the quantum dot carrier populations.
High-efficiency diode-pumped femtosecond Yb:YAG ceramic laser

A highly efficient diode-end-pumped femtosecond Yb:yttrium aluminum garnet (YAG) ceramic laser was demonstrated. Pumped by a 968 nm fiber-coupled diode laser, 1.9 W mode-locked output power at a repetition rate of 64.27 MHz was obtained with 3.5 W absorbed pump power, corresponding to a slope efficiency of 76%. Our measurement showed that the pulse duration was 418 fs with the central wavelength of 1048 nm.

General information

State: Published
Organisations: Fiber Sensors and Supercontinuum Generation, Department of Photonics Engineering
Authors: Zhou, B. (Intern), Wei, Z. (Ekstern), Zou, Y. (Ekstern), Zhang, Y. (Ekstern), Zhong, X. (Ekstern), Bourdet, G. (Ekstern), Wang, J. (Ekstern)
Pages: 288-290
Highly anisotropic decay rates of single quantum dots in photonic crystal membranes

We have measured the variation of the spontaneous emission rate with polarization for self-assembled single quantum dots in two-dimensional photonic crystal membranes. We observe a maximum anisotropy factor of 6 between the decay rates of the two bright exciton states. This large anisotropy is attributed to the substantially different projected local density of optical states for differently oriented dipoles in the photonic crystal.
High-resolution two-dimensional image upconversion of incoherent light

We consider a technique for high-resolution image upconversion of thermal light. Experimentally, we demonstrate cw upconversion with a resolution of more than 200 × 1000 pixels of thermally illuminated objects. This is the first demonstration (to our knowledge) of high-resolution cw image upconversion. The upconversion method promises an alternative route to high-quantum-efficiency all-optical imaging in the mid-IR wavelength region and beyond using standard CCD cameras. A particular advantage of CCD cameras compared to state-of-the-art thermal cameras is the possibility to tailor and tune the spectral response leading to functional spectral imaging.

General information
State: Published
Organisations: Optical Sensor Technology, Department of Photonics Engineering
Authors: Dam, J. S. (Intern), Pedersen, C. (Intern), Tidemand-Lichtenberg, P. (Intern)
Pages: 3796-3798
Publication date: 2010
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 35
Issue number: 22
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Microstructured optical fiber refractive index sensor
We describe a dual-core microstructured optical fiber designed for refractive index sensing of fluids. We show that by using the exponential dependence of intercore coupling on analyte refractive index, both large range and high sensitivity can be achieved in the one device. We also show that selective filling of the microstructure with analyte can increase the device sensitivity by approximately 1 order of magnitude.

General information
State: Published
Organisations: Fiber Sensors and Supercontinuum Generation, Department of Photonics Engineering, Macquarie University
Authors: Town, G. E. (Ekstern), McCosker, R. (Ekstern), Yuan, S. W. (Intern), Bang, O. (Intern)
Pages: 856-858
Publication date: 2010
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 35
Issue number: 6
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
On the use of slow light for enhancing waveguide properties

On the basis of a general analysis of waveguides containing a dispersive material, we identify conditions under which slow-light propagation may enhance the gain, absorption, or phase change. The enhancement is shown to depend on the slow-light mechanism and the translational symmetry of the waveguide. A combination of material and waveguide dispersion may strongly enhance the control of light speed, e.g., using electromagnetically induced transparency in quantum dots embedded in a photonic crystal waveguide.

General information
State: Published
Organisations: Nanophotonics Theory and Signal Processing, Department of Photonics Engineering
Authors: Mørk, J. (Intern), Nielsen, T. R. (Intern)
Pages: 2834-2836
Publication date: 2010
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 35
Issue number: 17
ISSN (Print): 0146-9592

On the use of slow light for enhancing waveguide properties
On the basis of a general analysis of waveguides containing a dispersive material, we identify conditions under which slow-light propagation may enhance the gain, absorption, or phase change. The enhancement is shown to depend on the slow-light mechanism and the translational symmetry of the waveguide. A combination of material and waveguide dispersion may strongly enhance the control of light speed, e.g., using electromagnetically induced transparency in quantum dots embedded in a photonic crystal waveguide.

General information
State: Published
Organisations: Nanophotonics Theory and Signal Processing, Department of Photonics Engineering
Authors: Mørk, J. (Intern), Nielsen, T. R. (Intern)
Pages: 2834-2836
Publication date: 2010
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 35
Issue number: 17
ISSN (Print): 0146-9592

Ratings:
BFI (2018): BFI-level 1
Scopus rating (2018): SJR 3.354 SNIP 2.384
Web of Science (2018): Indexed yes
Scopus rating (2017): SJR 3.443 SNIP 2.157
Web of Science (2017): Indexed yes
Scopus rating (2016): SJR 3.126 SNIP 2.319
Web of Science (2016): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926 SNIP 1.685

Original language: English
DOIs:
10.1364/OL.35.000856

Links:
http://www.opticsinfobase.org/ol/abstract.cfm?uri=ol-35-6-856
Source: orbit
Source-ID: 259297
Publication: Research - peer-review › Journal article – Annual report year: 2010
Phase microscopy of technical and biological samples through random phase modulation with a difuser

A technique for phase microscopy using a phase diffuser and a reconstruction algorithm is proposed. A magnified specimen wavefront is projected on the diffuser plane that modulates the wavefront into a speckle field. The speckle patterns at axially displaced planes are sampled and used in an iterative phase retrieval algorithm based on a wave-
propagation equation. The technique offers a whole-field and high-resolution wavefront reconstruction of unstained microstructures. Phase maps of photoresist targets and human cheek cells are obtained to demonstrate the effectiveness of our method. (C) 2010 Optical Society of America

**General information**

State: Published
Organisations: Department of Photonics Engineering, Optical Sensor Technology, Universität Stuttgart
Authors: Almoro, P. (Intern), Pedrini, G. (Ekstern), Gundu, P. N. (Intern), Osten, W. (Ekstern), Hanson, S. G. (Intern)
Pages: 1028-1030
Publication date: 2010
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Optics Letters
Volume: 35
Issue number: 7
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Self-stabilization of a mode-locked femtosecond fiber laser using a photonic bandgap fiber

We demonstrate a self-stabilization mechanism of a semiconductor saturable absorber mode-locked linear-cavity Yb-doped fiber laser using an intracavity photonic bandgap fiber. This mechanism relies on the spectral shift of the laser pulses to a spectral range of higher anomalous dispersion and higher loss of the photonic bandgap fiber, as a reaction to the intracavity power buildup. This, in particular, results in a smaller cavity loss for the stably mode-locked laser, as opposed to the Q-switched mode-locking scenario. The laser provides stable 39–49 pJ pulses of around 230 fs duration at 29 MHz repetition rate.
Tunable high-power narrow-spectrum external-cavity diode laser based on tapered amplifier at 668 nm

A 668 nm tunable high-power narrow-spectrum diode laser system based on a tapered semiconductor optical amplifier in external cavity is demonstrated. The laser system is tunable from 659 to 675 nm. As high as 1.38 W output power is obtained at 668.35 nm. The emission spectral bandwidth is less than 0.07 nm throughout the tuning range, and the beam quality factor M2 is 2.0 with the output power of 1.27 W.

General information
State: Published
Organisations: Diode Lasers and LED Systems, Department of Photonics Engineering, Ferdinand-Braun-Institut
Authors: Chi, M. (Intern), Erbert, G. (Ekstern), Sumpf, B. (Ekstern), Petersen, P. M. (Intern)
Unidirectional ring-laser operation using sum-frequency mixing

A technique enforcing unidirectional operation of ring lasers is proposed and demonstrated. The approach relies on sum-frequency mixing between a single-pass laser and one of the two counterpropagating intracavity fields of the ring laser. Sum-frequency mixing introduces a parametric loss for the intracavity field copropagating with the single-pass field, effectively generating a loss difference between the copropagating and counterpropagating intracavity fields. This loss mechanism ensures stable unidirectional lasing. The approach is generic and can be implemented at any desired lasing wavelength where lossless second-order nonlinear materials are available. Numerical modeling and experimental demonstration of parametric-induced unidirectional operation of a diode-pumped solid-state 1342 nm cw ring laser are presented.
Diode-pumped passively mode-locked Yb:Y3Ga5O12 laser

We experimentally demonstrated femtosecond operation in a diode-pumped Yb:Y3Ga5O12 laser for the first time, to the best of our knowledge. By using Gires-Tournois interferometer mirrors for dispersion compensation and a semiconductor saturable absorber mirror for passive mode locking, pulses with a duration as short as 245 fs at the central wavelength of 1045 nm have been produced at a repetition rate of 64.3 MHz. Under the full pump power of 7 W, the maximum output power was 570 mW, with an average slope efficiency of 14.1%. (C) 2009 Optical Society of America

General information
State: Published
Organisations: Chinese Academy of Sciences, Shandong University
Generation and propagation of radially polarized beams in optical fibers

Beams with polarization singularities have attracted immense recent attention in a wide array of scientific and technological disciplines. We demonstrate a class of optical fibers in which these beams can be generated and propagated over long lengths with unprecedented stability, even in the presence of strong bend perturbations. This opens the door to exploiting nonlinear fiber optics to manipulate such beams. This fiber also possesses the intriguingly counterintuitive property of being polarization maintaining despite being strictly cylindrically symmetric, a prospect hitherto considered infeasible with optical fibers. (C) 2009 Optical Society of America.

General information
State: Published
Organisations: Department of Photonics Engineering
Authors: Ramachandran, S. (Intern), Kristensen, P. (Ekstern), Yan, M. F. (Ekstern)
Pages: 2525-2527
Publication date: 2009
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 34
Issue number: 16
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Generation of 210 fs laser pulses at 1093 nm by a self-starting mode-locked Yb:GYSO laser

We report the first demonstration, to our knowledge, of the femtosecond laser operation by using a new alloyed Yb:GYSO crystal as the gain medium. With a 5 at. % Yb3+-doped sample and chirped mirrors for dispersion compensation, we obtained pulses as short as 210 fs at the center wavelength of 1093 nm. The average mode-locking power is 300 mW, and the pulse repetition frequency is 80 MHz.

General information
State: Published
Organisations: Chinese Academy of Sciences
Authors: Zhou, B. (Intern), Wei, Z. (Ekstern), Zhang, Y. (Ekstern), Zhong, X. (Ekstern), Teng, H. (Ekstern), Zheng, L. (Ekstern), Su, L. (Ekstern), Xu, J. (Ekstern)
Number of pages: 3
Pages: 31-33
Publication date: 2009
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Microwave phase shifter with controllable power response based on slow- and fast-light effects in semiconductor optical amplifiers

We suggest and experimentally demonstrate a method for increasing the tunable rf phase shift of semiconductor waveguides while at the same time enabling control of the rf power. This method is based on the use of slow- and fast-light effects in a cascade of semiconductor optical amplifiers combined with the use of spectral filtering to enhance the role of refractive index dynamics. A continuously tunable phase shift of 240° at a microwave frequency of 19 GHz is demonstrated in a cascade of two semiconductor optical amplifiers, while maintaining an rf power change of less than 1.6 dB. The technique is scalable to more amplifiers and should allow realization of an rf phase shift of 360°.

General information
State: Published
Organisations: Nanophotonics Theory and Signal Processing, Department of Photonics Engineering, Universidad Politecnica de Valencia
Authors: Xue, W. (Intern), Sales, S. (Ekstern), Capmany, J. (Ekstern), Mørk, J. (Intern)
Pages: 929-931
Publication date: 2009
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 34
Issue number: 7
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
Multiorder nonlinear diffraction in frequency doubling processes

We analyze experimentally light scattering from 2 nonlinear gratings and observe two types of second-harmonic frequency-scattering processes. The first process is identified as Raman–Nath type nonlinear diffraction that is explained by applying only transverse phase-matching conditions. The angular position of this type of diffraction is defined by the ratio of the second-harmonic wavelength and the grating period. In contrast, the second type of nonlinear scattering process is explained by the longitudinal phase matching only, being insensitive to the nonlinear grating.
Numerical correction of aberrations via phase retrieval with speckle illumination

What we believe to be a novel technique for wavefront aberration measurement using speckle patterns is presented. The aberration correction is done numerically. A tilted lens is illuminated with a partially developed speckle field, and the transmitted light intensity is sampled at axially displaced planes. The speckle intensity patterns are then sent to a phase-retrieval algorithm to reconstruct the complete wavefront. The nature of the wavefront aberration is determined through Zernike polynomials. Numerical correction of the perturbed wavefront is performed based on rms error and the Strehl ratio. Restoration of the wavefront from a phase object with high spatial frequency content shows the effectiveness of our method. (C) 2009 Optical Society of America
Numerical model for the temporal broadening of optical pulses propagating through weak atmospheric turbulence

In atmospheric optical communications, propagating pulses may be influenced by pulse spreading owing to turbulence, above all in scenarios characterized by sand and/or dust atmosphere. The long-term temporal broadening of a space–time Gaussian pulse propagating along a horizontal path through weak optical turbulence is modeled by the behavior of a Gaussian filter, where its cutoff frequency is related to the physical parameters of the link. Thus, it could be incorporated in a direct way to a numerical simulation model.

**General information**
State: Published
Organisations: University of Malaga
Authors: Jurado-Navas, A. (Intern), Garrido Balsells, J. M. (Ekstern), Castillo-Vazquez, M. (Ekstern), Puerta-Notario, A. (Ekstern)
Pages: 3662-3664
Publication date: 2009
Main Research Area: Technical/natural sciences

**Publication information**
Journal: Optics Letters
Volume: 34
Issue number: 23
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926 SNIP 1.685
Original language: English
DOIs: 10.1364/OL.34.003662
Source: PublicationPreSubmission
Source-ID: 111828308
Publication: Research - peer-review › Journal article – Annual report year: 2009
Observation of two-dimensional nonlocal gap solitons

We demonstrate, both theoretically and experimentally, the existence of nonlocal gap solitons in two-dimensional periodic photonic structures with defocusing thermal nonlinearity. We employ liquid-infiltrated photonic crystal fibers and show how the system geometry can modify the effective response of a nonlocal medium and the properties of two-dimensional gap solitons. © 2009 Optical Society of America

General information
State: Published
Organisations: Department of Photonics Engineering, Fiber Sensors and Supercontinuum Generation
Authors: Rasmussen, P. D. (Intern), Bennett, F. H. (Ekstern), Neshev, D. N. (Ekstern), Sukhorukov, A. A. (Ekstern), Rosberg, C. R. (Ekstern), Krollkowski, W. (Ekstern), Bang, O. (Intern), Kivshar, Y. S. (Ekstern)
Pages: 295-297
Publication date: 2009
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 34
Issue number: 3
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
On-chip tunable long-period grating devices based on liquid crystal photonic bandgap fibers

We design and fabricate an on-chip tunable long-period grating device by integrating a liquid crystal photonic bandgap fiber on silicon structures. The transmission axis of the device can be electrically rotated in steps of 45° as well as switched on and off with the response time in the millisecond range. The strength of the loss peak is controlled electrically, and the spectral position of the loss peak is thermally tunable. This compact design results in a stable grating, and enables this device to be more easily applied in practical systems.

General information
State: Published
Organisations: Fiber Optics, Devices and Non-linear Effects, Department of Photonics Engineering
Authors: Wei, L. (Intern), Weirich, J. (Intern), Alkeskjold, T. T. (Intern), Bjarklev, A. O. (Intern)
Pages: 3818-3820
Publication date: 2009
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 34
Issue number: 24
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
Optically fed microwave true-time delay based on a compact liquid-crystal hotonic-bandgap-fiber device

An electrically tunable liquid-crystal, photonic-bandgap-fiber-device-based, optically fed microwave true-time delay is demonstrated with the response time in the millisecond range. A maximum electrically controlled phase shift of around 70° at 15GHz and an averaged 12.9ps true time delay over the whole modulation frequency range of 1-15GHz are obtained.

General Information
State: Published
Organisations: Fiber Optics, Devices and Non-linear Effects, Department of Photonics Engineering, Nanophotonics Theory and Signal Processing
Photonic generation of ultrawideband monocycle and doublet pulses by using a semiconductor-optical-amplifier-based wavelength converter

Photonic generation of ultrawideband (UWB) monocycle and doublet pulses is experimentally demonstrated using a cascaded electroabsorption modulator (EAM) and semiconductor optical amplifier by exploiting a combination of cross-absorption modulation and cross-gain modulation. The polarities and shapes of UWB monocycle and doublet pulses can be simply controlled using an optical time-delay controller and the reverse voltage applied to the EAM. The corresponding measured rf spectra meet the UWB criteria.

General information
State: Published
Organisations: Department of Photonics Engineering, Metro-Access and Short Range Systems, Nanophotonics Theory and Signal Processing
Pages: 1336
Publication date: 2009
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 34
Issue number: 9
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Quadrature measurements of a bright squeezed state via sideband swapping
The measurement of an arbitrary quadrature of a bright quantum state of light is a commonly requested action in many quantum information protocols, but it is experimentally challenging with previously proposed schemes. We suggest that the quadrature be measured at a specific sideband frequency of a bright quantum state by transferring the sideband modes under interrogation to a vacuum state and subsequently measuring the quadrature via homodyne detection. The scheme is implemented experimentally, and it is successfully tested with a bright squeezed state of light.

General information
State: Published
Organisations: Quantum Physics and Information Techology, Department of Physics
Authors: Schneider, J. (Ekstern), Glockl, O. (Ekstern), Leuchs, G. (Ekstern), Andersen, U. L. (Intern)
Pages: 1186-1188
Publication date: 2009
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 34
Issue number: 8
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926 SNIP 1.685
Shape and deformation measurements of 3D objects using volume speckle field and phase retrieval

Shape and deformation measurement of diffusely reflecting 3D objects are very important in many application areas, including quality control, nondestructive testing, and design. When rough objects are exposed to coherent beams, the scattered light produces speckle fields. A method to measure the shape and deformation of 3D objects from the sequential intensity measurements of volume speckle field and phase retrieval based on angular-spectrum propagation technique is described here. The shape of a convex spherical surface was measured directly from the calculated phase map, and micrometer-sized deformation induced on a metal sheet was obtained upon subtraction of the phase, corresponding to unloaded and loaded states. Results from computer simulations confirm the experiments. (C) 2009 Optical Society of America.
Adiabatic soliton compression by means of a pressure gradient in a hollow-core photonic bandgap fiber is investigated theoretically and numerically. It is shown that the duration of the compressed pulse is limited mainly by the interplay between third-order dispersion and the Raman-induced soliton frequency shift. Analytical expressions for this limit are derived and compared with results of detailed numerical simulations for a realistic fiber structure.

Theory of adiabatic pressure-gradient soliton compression in hollow-core photonic bandgap fibers

Adiabatic soliton compression by means of a pressure gradient in a hollow-core photonic bandgap fiber is investigated theoretically and numerically. It is shown that the duration of the compressed pulse is limited mainly by the interplay between third-order dispersion and the Raman-induced soliton frequency shift. Analytical expressions for this limit are derived and compared with results of detailed numerical simulations for a realistic fiber structure.

General information
State: Published
Organisations: Fiber Optics, Devices and Non-linear Effects, Department of Photonics Engineering
Authors: Lægsgaard, J. (Intern), Roberts, J. (Intern)
Pages: 3710-3712
Publication date: 2009
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 34
Issue number: 23
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926 SNIP 1.685

Original language: English
DOI: 10.1364/OL.34.003710
Source: orbit
Source-ID: 253820
Publication: Research - peer-review › Journal article – Annual report year: 2009
Controlling the emission profile of a nanowire with a conical taper
The influence of a tapering on nanowire light-emission profiles is studied. We show that, for nanowires with divergent output beams, the introduction of a conical tapering with a small opening angle reduces the beam divergence and increases transmission. This results in a dramatic increase in the collection efficiency of the detection optics. For a realistic tapering and a modest NA, the collection efficiency is enhanced by more than a factor of 2. This improvement is ensured by the adiabatic expansion of the guided mode in the tapering.

General information
State: Published
Organisations: Nanophotonics Theory and Signal Processing, Department of Photonics Engineering
Authors: Gregersen, N. (Intern), Nielsen, T. R. (Intern), Claudon, J. (Ekstern), Gerard, J. M. (Ekstern), Mørk, J. (Intern)
Pages: 1693-1695
Publication date: 1 Aug 2008
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 33
Issue number: 15
ISSN (Print): 0146-9592
Ratings:
  BFI (2018): BFI-level 2
  Web of Science (2018): Indexed yes
  BFI (2017): BFI-level 2
  Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
  Web of Science (2017): Indexed yes
  BFI (2016): BFI-level 2
  Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
  Web of Science (2016): Indexed yes
  BFI (2015): BFI-level 2
  Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
  Web of Science (2015): Indexed yes
  BFI (2014): BFI-level 2
  Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
  Web of Science (2014): Indexed yes
  BFI (2013): BFI-level 2
  Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
  ISI indexed (2013): ISI indexed yes
  Web of Science (2013): Indexed yes
  BFI (2012): BFI-level 2
  Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
  ISI indexed (2012): ISI indexed yes
  Web of Science (2012): Indexed yes
  BFI (2011): BFI-level 2
  Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
  ISI indexed (2011): ISI indexed yes
  Web of Science (2011): Indexed yes
  BFI (2010): BFI-level 2
  Scopus rating (2010): SJR 2.637 SNIP 2.263
  Web of Science (2010): Indexed yes
  BFI (2009): BFI-level 1
  Scopus rating (2009): SJR 3.077 SNIP 2.658
  Web of Science (2009): Indexed yes
  BFI (2008): BFI-level 1
  Scopus rating (2008): SJR 3.354 SNIP 2.384
  Web of Science (2008): Indexed yes
  Scopus rating (2007): SJR 3.443 SNIP 2.157
Avoided-crossing-based liquid-crystal photonic-bandgap notch filter

General information
State: Published
Organisations: Fiber Optics, Devices and Non-linear Effects, Department of Photonics Engineering
Authors: Noordegraaf, D. (Intern), Scolari, L. (Intern), Lægsgaard, J. (Intern), Alkeskjold, T. T. (Intern), Tartarini, G. (Ekstern), Borelli, E. (Ekstern), Bassi, P. (Ekstern), Li, J. (Ekstern), Wu, S. (Ekstern)
Pages: 986-988
Publication date: 2008
Main Research Area: Technical/natural sciences

Publication Information
Journal: Optics Letters
Volume: 33
Issue number: 9
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Broadband light generation at ~1300 nm through spectrally recoiled solitons and dispersive waves

We experimentally study the generation of broadband light at ~1300 nm from an 810 nm Ti:sapphire femtosecond pump laser. We use two photonic crystal fibers with a second infrared zero-dispersion wavelength (λZ2) and compare the efficiency of two schemes: in one fiber λZ2=1400 nm and the light at 1300 nm is composed of spectrally recoiled solitons; in the other fiber λZ2=1200 nm and the light at 1300 nm is composed of dispersive waves.

General information
State: Published
Organisations: Department of Photonics Engineering, Fiber Sensors and Supercontinuum Generation, Terahertz Technologies and Biophotonics, Crystal Fibre A/S
Authors: Falk, P. A. (Intern), Frosz, M. H. (Intern), Bang, O. (Intern), Thrane, L. (Intern), Andersen, P. E. (Intern), Bjarklev, A. O. (Intern), Hansen, K. P. (Ekstern), Broeng, J. (Intern)
Pages: 621-623
Publication date: 2008
Main Research Area: Technical/natural sciences
Channel plasmon polariton propagation in nanoimprinted V-groove waveguides

We present the results of optical characterization of metal V-groove waveguides using scanning near-field microscopy, showing broadband transmission with subwavelength confinement and propagation lengths exceeding 100 μm. An updated fabrication method using a combination of UV and nanoimprint lithography is presented. The developed approach is mass-production compatible, adaptable to different designs, and offers wafer-scale parallel fabrication of plasmonic components based on profiled metal surfaces.
Channel plasmon polariton waveguides fabricated by combined UV and nanoimprint lithography

General information
State: Published
Organisations: Plasmonics and Metamaterials, Department of Photonics Engineering, NSE-Optofluidics Group, NanoSystemsEngineering Section, Department of Micro- and Nanotechnology
Authors: Nielsen, R. B. (Intern), Fernandez-Cuesta, I. (Ekstern), Boltasseva, A. (Intern), Volkov, V. (Ekstern), Bozhevolnyi, S. (Ekstern), Klukowska, A. (Ekstern), Kristensen, A. (Intern)
Pages: 2800-2802
Publication date: 2008
Main Research Area: Technical/natural sciences

Publication information
Electronic noise-free measurements of squeezed light

General information
State: Published
Organisations: Department of Physics, Quantum Physics and Information Technology
Authors: Krivitsky, L. (Intern), Andersen, U. L. (Intern), Dong, R. (Ekstern), Huck, A. (Intern), Wittmann, C. (Ekstern), Leuchs, G. (Ekstern)
Pages: 2395-2397
Publication date: 2008
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 33
Issue number: 20
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Enhancing light slow-down in semiconductor optical amplifiers by optical filtering

General information
State: Published
Organisations: Nanophotonics Theory and Signal Processing, Department of Photonics Engineering
Authors: Xue, W. (Intern), Chen, Y. (Intern), Öhman, F. (Intern), Sales, S. (Ekstern), Mørk, J. (Intern)
Pages: 1084-1086
Publication date: 2008
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 33
Issue number: 10
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Experimental evidence for Raman-induced limits to efficient squeezing in optical fibers

We report new experiments on polarization squeezing using ultrashort photonic pulses in a single pass of a birefringent fiber. We measure what is to our knowledge a record squeezing of -6.8 +/- 0.3 dB in optical fibers which when corrected for linear losses is -10.4 +/- 0.8 dB. The measured polarization squeezing as a function of optical pulse energy, which spans a wide range from 3.5-178.8 pJ, shows a very good agreement with the quantum simulations and for the first time we see the experimental proof that Raman effects limit and reduce squeezing at high pulse energy.

General information
State: Published
Organisations: Department of Physics
Authors: Dong, R. (Ekstern), Heersink, J. (Ekstern), Corney, J. (Ekstern), Drummond, P. (Ekstern), Andersen, U. L. (Intern), Leuchs, G. (Ekstern)
Fiber transmission and generation of ultrawideband pulses by direct current modulation of semi-conductor lasers and chirp-to-intensity conversion

Optical pulses generated by current modulation of semiconductor lasers are strongly frequency chirped. This effect has been considered pernicious for optical communications. We take advantage of this effect for the generation of ultrawideband microwave signals by using an optical filter to achieve chirp-to-intensity conversion. We also experimentally achieve propagation through a 20 km nonzero dispersion shifted fiber with no degradation of the signal at the receiver. Our method constitutes a prospective low-cost solution and offers integration capabilities with fiber-to-the-customer-premise systems.
Fourth-order dispersion mediated solitonic radiations in HC-PCF cladding

We observe experimentally, for the first time to our knowledge, the simultaneous emission of two strong conjugate resonant dispersive waves emitted by optical solitons. The effect is observed in a small waveguiding glass-feature within the cladding of a Kagome hollow-core photonic crystal fiber. We demonstrate theoretically that the phenomenon is attributed to the unusually high forth-order dispersion coefficient of the waveguiding feature.

General information
State: Published
Organisations: Fiber Optics, Devices and Non-linear Effects, Department of Photonics Engineering
Authors: Benabid, F. (Ekstern), Biancalana, F. (Ekstern), Light, P. (Ekstern), Couny, F. (Ekstern), Luiten, A. (Ekstern), Roberts, J. (Intern), Peng, J. (Ekstern), Sokolow, A. V. (Ekstern)
Pages: 2680-2682
Publication date: 2008
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 33
Issue number: 22
ISSN (Print): 0146-9592
Ratings:

BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes

BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes

BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes

BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes

BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes

BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes

BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes

BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes

BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes

BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes

BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes

Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes

Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes

Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes

Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes

Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes

Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes

Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes

Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes

Scopus rating (1999): SJR 3.926 SNIP 1.685
Fractional decay of quantum dots in real photonic crystals
We show that fractional decay may be observable in experiments using quantum dots and photonic crystals with parameters that are currently achievable. We focus on the case of inverse opal photonic crystals and locate the position in the crystal where the effect is most pronounced. Furthermore, we quantify the influence of absorptive loss and show that it is a limiting but not prohibitive effect.
Highly sensitive refractometer with a photonic-crystal-fiber long-period grating

General information
State: Published
Organisations: Department of Photonics Engineering, Fiber Sensors and Supercontinuum Generation
Authors: Rindorf, L. H. (Intern), Bang, O. (Intern)
Pages: 563-565
Publication date: 2008
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 33
Issue number: 6
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
Interferometric evaluation of angular displacement using phase retrieval

General information
State: Published
Organisations: Optical Sensor Technology, Department of Photonics Engineering
Authors: Almoro, P. (Intern), Pedrini, G. (Ekstern), Anand, A. (Ekstern), Osten, W. (Ekstern), Hanson, S. G. (Intern)
Pages: 2041-2043
Nonlinear interaction between two different photonic bandgaps of a hybrid photonic crystal fiber

Nonlinear interaction between spectral components in two different photonic bandgaps is experimentally demonstrated by launching femtosecond pulses near a zero-dispersion wavelength of a hybrid photonic crystal fiber, which guides by a combination of total internal reflection and bandgap effects. It is demonstrated that the initial pulse becomes spectrally broadened, and narrowband resonant radiation is generated in a different bandgap from the one responsible for guiding at the pump wavelength. The spectral intensity of the resonant radiation peaks at 2.7 dB below that of the broadened pulse in the pump-guiding bandgap.

General information
State: Published
Organisations: Fiber Optics, Devices and Non-linear Effects, Department of Photonics Engineering
Authors: Cerqueira, A. (Ekstern), Cordeiro, C. M. (Ekstern), Biancalana, F. (Ekstern), Roberts, J. (Intern), Hernandez-Gigueroa, H. (Ekstern), Cruz, C. B. (Ekstern)
Pages: 2080-2082
Publication date: 2008
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 33
Issue number: 18
ISSN (Print): 0146-9592
Ratings: BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Photonic crystal resonator integrated in a microfluidic system

We report on a novel optofluidic system consisting of a silica-based 1D photonic crystal, integrated planar waveguides, and electrically insulated fluidic channels. An array of pillars in a microfluidic channel designed for electrochromatography is used as a resonator for on-column label-free refractive index detection. The resonator was fabricated in a silicon oxynitride platform, to support electro-osmotic flow, and operated at \( \lambda = 1.55 \) m. Different aqueous solutions of ethanol with refractive indices ranging from \( n = 1.3330 \) to \( 1.3616 \) were pumped into the column/resonator, and the transmission spectra were recorded. Linear shifts of the resonant wavelengths yielded a maximum sensitivity of \( /n = 480 \text{ nm/RIU} \) (refractive index unit), and a minimum difference of \( n = 0.007 \text{ RIU} \) was measured.

General information
State: Published
Organisations: ChemLabChip Group, LabChip Section, Department of Micro- and Nanotechnology, Structured Electromagnetic Materials, Department of Photonics Engineering
Authors: Rodrigues de Sousa Nunes, P. A. (Intern), Mortensen, N. A. (Intern), Kutter, J. P. (Intern), Mogensen, K. B. (Intern)
Pages: 1623-1625
Publication date: 2008
Main Research Area: Technical/natural sciences
Issue number: 14
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Confinement less spectral behavior in hollow-core Bragg fibers

The influence of each cross-section geometric parameter on hollow-core Bragg fiber guiding properties has been numerically investigated. Fabricated fibers have been modeled, giving insight into the spectral behavior of the confinement loss. It has been verified that, by changing the amount of silica and air in the fiber cladding, it is possible to change the reflection conditions undergone by the field within the core, thus shifting the confinement loss spectrum.
Electrically controlled broadband liquid crystal photonic bandgap fiber polarimeter

We demonstrate a liquid crystal photonic bandgap fiber based polarizer integrated in a double silicon v-groove assembly. The polarizer axis can be electrically controlled as well as switched on and off.

General information
State: Published
Organisations: Fibers & Nonlinear Optics, Department of Photonics Engineering
Authors: Alkeskjold, T. T. (Intern), Bjarklev, A. O. (Intern)
Pages: 1707-1709
Publication date: 2007
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 32
Issue number: 12
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Laser projection using generalized phase contrast

We demonstrate experimental laser projection of a gray-level photographic image with 74% light efficiency using the generalized phase contrast (GPC) method. In contrast with a previously proposed technique [Alonzo et al., New J. Phys. 9, 132 (2007)], a new approach to image construction via GPC is introduced. An arbitrary phase shift filter eliminates the need for high-frequency modulation and conjugate phase encoding. This lowers device performance requirements and allows practical implementation with currently available dynamic spatial light modulators. (c) 2007 Optical Society of America.
Localized biosensing with Topas microstructured Polymer Optical Fiber

We present what is believed to be the first microstructured polymer optical fiber (mPOF) fabricated from Topas cyclic olefin copolymer, which has attractive material and biochemical properties. This polymer allows for a novel type of fiber-optic biosensor, where localized sensor layers may be activated on the inner side of the air holes in a predetermined section of the mPOF. The concept is demonstrated using a fluorescence-based method for selective detection of fluorophore-labeled antibodies. © 2007 Optical Society of America

General information
State: Published
Organisations: Fibers & Nonlinear Optics, Department of Photonics Engineering, Department of Management Engineering, Bioneer A/S
Authors: Emiliyanov, G. A. (Intern), Jensen, J. B. (Intern), Bang, O. (Intern), Bjarklev, A. O. (Intern), Hoiby, P. E. (Ekstern), Pedersen, L. H. (Ekstern), Kjaer, E. M. (Intern), Lindvold, L. (Intern)
Pages: 460-462
Publication date: 2007
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 32
Issue number: 5
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Localized biosensing with Topas microstructured polymer optical fiber: Erratum

General information
State: Published
Organisations: Fibers & Nonlinear Optics, Department of Photonics Engineering, Department of Management Engineering, Risø National Laboratory for Sustainable Energy, Bioneer A/S
Authors: Emiliyanov, G. A. (Intern), Jensen, J. B. (Intern), Bang, O. (Intern), Højby, P. E. (Ekstern), Pedersen, L. H. (Ekstern), Kjaer, E. M. (Intern), Lindvold, L. (Intern)
Pages: 1059-1059
Publication date: 2007
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 32
Issue number: 9
ISSN (Print): 0146-9592

Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Nonlocal explanation of stationary and nonstationary regimes in cascaded soliton pulse compression

General information
State: Published
Organisations: Fiber Sensors and Supercontinuum Generation, Department of Photonics Engineering
Authors: Bache, M. (Intern), Bang, O. (Intern), Moses, J. (Ekstern), Wise, F. (Ekstern)
Pages: 2490-2492
Publication date: 2007
Main Research Area: Technical/natural sciences

Publication information
Journal: Optic Letters
Volume: 32
Issue number: 17
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
Nonlinear polarization rotation in a dispersion-flattened photonic-crystal fiber for ultrawideband (> 100 nm) all-optical wavelength conversion of 10 Gbit/s nonreturn-to-zero signals

We study the conversion bandwidth of the cross-polarization-modulation (YPoIM)-based wavelength conversion scheme with a dispersion-flattened highly nonlinear photonic-crystal fiber for signals with a nonreturn-to-zero (NRZ) modulation format. Both theoretical and experimental results show that the conversion bandwidth can be extended to cover a very wide band, including S-, C-, and L-bands for 10 Gbit/s NRZ signals (a total bandwidth of 120 nm is experimentally demonstrated). We also study the theoretical bandwidth limit for 40 Gbit/s NRZ signals. A significant extension of the conversion bandwidth using the YPoIM approach compared with the four-wave mixing approach previously reported is demonstrated.

General information
State: Published
Organisations: Department of Photonics Engineering
Authors: Kwok, C. (Ekstern), Chow, C. (Ekstern), Tsang, H. (Ekstern), Lin, C. (Ekstern), Bjarklev, A. O. (Intern)
Pages: 1782-1784
Publication date: 2006
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 31
Issue number: 12
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Frequency correlations in multiply scattered light that are present in quantum fluctuations are investigated. The speckle correlations for quantum and classical noise are compared and are found to depend markedly differently on optical frequency, which was confirmed in a recent experiment. Furthermore, novel mesoscopic correlations are predicted that depend on the photon statistics of the incoming light.
Tuning quadratic nonlinear photonic crystal fibers for zero group-velocity mismatch

We consider an index-guiding silica photonic crystal fiber with a triangular hole pattern and a periodically poled quadratic nonlinearity. By tuning the pitch and the relative hole size, second-harmonic generation with zero group-velocity mismatch is found for any fundamental wavelength above 780 nm. The nonlinear strength is optimized when the fundamental has maximum confinement in the core. The conversion bandwidth allows for femtosecond-pulse conversion, and 4%-180% W cm⁻² relative efficiencies were found.

© 2006 Optical Society of America
Optical biosensor with dispersion compensation

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Zong, W. (Ekstern), Thirstrup, C. (Ekstern), Sørensen, M. (Ekstern), Pedersen, H. (Intern)
Pages: 1138-1140
Publication date: 2005
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 30
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Peak-type and dip-type metal-clad waveguide sensing

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Skivesen, N. (Ekstern), Horvath, R. (Intern), Pedersen, H. (Intern)
Pages: 1659-1661
Publication date: 2005
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 30
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Self-injection locking of an extraordinarily wide broad-area diode laser with a 1000-μm-wide emitter

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Chi, M. (Intern), Thestrup, B. (Ekstern), Petersen, P. (Intern)
Pages: 1147-1149
Publication date: 2005
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 30
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Semi-analytical approach to short-wavelength dispersion and modal properties of photonic crystal fibers

General information
State: Published
Organisations: Department of Micro- and Nanotechnology
Authors: Mortensen, N. A. (Intern)
Pages: 1455-1457
Publication date: 2005
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 30
Issue number: 12
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
**Attraction of nonlocal dark optical solitons**

We study the formation and interaction of spatial dark optical solitons in materials with a nonlocal nonlinear response. We show that unlike in local materials, where dark solitons typically repel, the nonlocal nonlinearity leads to a long-range attraction and formation of stable bound states of dark solitons. (C) 2004 Optical Society of America

**General information**

State: Published
Organisations: Department of Informatics and Mathematical Modeling
Authors: Nikolov, N. I. (Intern), Neshev, D. (Ekstern), Krolikowski, W. (Ekstern), Bang, O. (Intern), Rasmussen, J. J. (Ekstern), Christiansen, P. L. (Intern)
Pages: 286-288
Publication date: 1 Feb 2004
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Optics Letters
Volume: 29
Issue number: 3
ISSN (Print): 0146-9592
Ratings:
- BFI (2018): BFI-level 2
- Web of Science (2018): Indexed yes
- BFI (2017): BFI-level 2
- Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
- Web of Science (2017): Indexed yes
- BFI (2016): BFI-level 2
- Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
- Web of Science (2016): Indexed yes
- BFI (2015): BFI-level 2
- Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
- Web of Science (2015): Indexed yes
- BFI (2014): BFI-level 2
- Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
- Web of Science (2014): Indexed yes
- BFI (2013): BFI-level 2
- Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
- ISI indexed (2013): ISI indexed yes
- Web of Science (2013): Indexed yes
- BFI (2012): BFI-level 2
- Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
- ISI indexed (2012): ISI indexed yes
- Web of Science (2012): Indexed yes
- BFI (2011): BFI-level 2
- Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
- ISI indexed (2011): ISI indexed yes
- Web of Science (2011): Indexed yes
- BFI (2010): BFI-level 2
- Scopus rating (2010): SJR 2.637 SNIP 2.263
- Web of Science (2010): Indexed yes
- BFI (2009): BFI-level 1
- Scopus rating (2009): SJR 3.077 SNIP 2.658
- Web of Science (2009): Indexed yes
- BFI (2008): BFI-level 1
- Scopus rating (2008): SJR 3.354 SNIP 2.384
- Web of Science (2008): Indexed yes
Extraction of optical scattering parameters and attenuation compensation in optical coherence tomography images of multilayered tissue structures

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Thrane, L. (Intern), Frosz, M. (Ekstern), Jørgensen, T. (Intern), Tycho, A. (Intern), Yura, H. (Ekstern), Andersen, P. E. (Intern)
Pages: 1641-1643
Publication date: 2004
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 29
ISSN (Print): 0146-9592
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
Real-time three-dimensional optical micromanipulation of multiple particles and living cells

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Rodrigo, P. (Intern), Daria, V. (Ekstern), Glückstad, J. (Intern)
Pages: 2270-2272
Publication date: 2004
Main Research Area: Technical/natural sciences

Publication information
Comment on interferometric phase-only optical encryption system that uses a reference wave

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Glückstad, J. (Intern), Daria, V. (Intern), Rodrigo, P. (Intern)
Pages: 1075-1076
Publication date: 2003
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 28
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
Evanescent polarization holographic recording of sub-200-nm gratings in an azobenzene polyester

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Ramanujam, P. (Intern)
Pages: 2375-2377
Publication date: 2003
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 28
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
Experimental investigation of cut-off phenomena in non-linear photonic crystal fibres

General information
State: Published
Organisations: Department of Micro- and Nanotechnology, Glass Components and Materials, Department of Photonics Engineering
Authors: Folkenberg, J. (Ekstern), Mortensen, N. A. (Intern), Hansen, K. P. (Ekstern), Hansen, T. P. (Intern), Simonsen, H. R. (Ekstern), Jacobsen, C. (Ekstern)
Pages: 1882-1884
Publication date: 2003
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 28
Issue number: 20
Multimode reverse-symmetry waveguide sensor for broad-range refractometry

**General information**
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Skivesen, N. (Ekstern), Horvath, R. (Intern), Pedersen, H. (Intern)
Pages: 2473-2475
Publication date: 2003
Main Research Area: Technical/natural sciences

**Publication information**
Journal: Optics Letters
Volume: 28
ISSN (Print): 0146-9592
Ratings:
- BFI (2018): BFI-level 2
- Web of Science (2018): Indexed yes
- BFI (2017): BFI-level 2
- Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
- Web of Science (2017): Indexed yes
- BFI (2016): BFI-level 2
- Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
- Web of Science (2016): Indexed yes
- BFI (2015): BFI-level 2
- Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
- Web of Science (2015): Indexed yes
- BFI (2014): BFI-level 2
- Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
- Web of Science (2014): Indexed yes
- BFI (2013): BFI-level 2
- Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
- ISI indexed (2013): ISI indexed yes
- Web of Science (2013): Indexed yes
- BFI (2012): BFI-level 2
- Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
- ISI indexed (2012): ISI indexed yes
- Web of Science (2012): Indexed yes
- BFI (2011): BFI-level 2
- Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
- ISI indexed (2011): ISI indexed yes
- Web of Science (2011): Indexed yes
- BFI (2010): BFI-level 2
- Scopus rating (2010): SJR 2.637 SNIP 2.263
- Web of Science (2010): Indexed yes
- BFI (2009): BFI-level 1
- Scopus rating (2009): SJR 3.077 SNIP 2.658
- Web of Science (2009): Indexed yes
- BFI (2008): BFI-level 1
- Scopus rating (2008): SJR 3.354 SNIP 2.384
- Web of Science (2008): Indexed yes
Optical waveguide sensor for on-line monitoring of bacteria

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Horvath, R. (Intern), Pedersen, H. (Intern), Skivesen, N. (Ekstern), Selmeczi, D. (Ekstern), Larsen, N. (Intern)
Pages: 1233-1235
Publication date: 2003
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 28
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Polarization holographic and surface-relief gratings at 257 nm in an amorphous azobenzene polyester

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Ramanujam, P. (Ekstern), Nedelchev, L. (Ekstern), Matharu, A. (Ekstern)
Pages: 1072-1074
Publication date: 2003
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 28
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Multiple-beam optical tweezers generated by the generalized phase-contrast method

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Eriksen, R. (Ekstern), Mogensen, P. (Intern), Glückstad, J. (Intern)
Pages: 267-269
Publication date: 2002
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 27
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Spatial quantum noise in singly resonant second-harmonic generation

General information

State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Lodahl, P. (Intern), Saffman, M. (Ekstern)
Pages: 110-112 (erratum p. 551)
Publication date: 2002
Main Research Area: Technical/natural sciences

Publication information

Journal: Optics Letters
Volume: 27
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Accurate switching intensities and length scales in quasi-phase-matched materials

We consider unseeded typeI second-harmonic generation in quasi-phase-matched quadratic nonlinear materials and derive an accurate analytical expression for the evolution of the average intensity. The intensity- dependent nonlinear phase mismatch that is due to the cubic nonlinearity induced by quasi phase matching is found. The equivalent formula for the intensity of maximum conversion, the crossing of which changes the one-period nonlinear phase shift of the
fundamental abruptly by p, corrects earlier estimates [Opt.Lett. 23, 506 (1998)] by a factor of 5.3. We find the crystal lengths that are necessary to obtain an optimal flat phase versus intensity response on either side of this separatrix intensity.

**General information**

- **State:** Published
- **Organisations:** Department of Informatics and Mathematical Modeling
- **Authors:** Bang, O. (Intern), Graversen, T. W. (Ekstern), Corney, J. F. (Intern)
- **Pages:** 1007-1009
- **Publication date:** 1 Jul 2001
- **Main Research Area:** Technical/natural sciences

**Publication information**

- **Journal:** Optics Letters
- **Volume:** 26
- **Issue number:** 13
- **ISSN (Print):** 0146-9592

**Ratings:**

- BFI (2018): BFI-level 2
- Web of Science (2018): Indexed yes
- BFI (2017): BFI-level 2
- Web of Science (2017): Indexed yes
- BFI (2016): BFI-level 2
- Web of Science (2016): Indexed yes
- BFI (2015): BFI-level 2
- Scopus rating (2015): CiteScore 3.54 SJR 1.769 SNIP 1.549
- Web of Science (2015): Indexed yes
- BFI (2014): BFI-level 2
- Scopus rating (2014): CiteScore 3.54 SJR 1.769 SNIP 1.549
- Web of Science (2014): Indexed yes
- BFI (2013): BFI-level 2
- Scopus rating (2013): CiteScore 3.54 SJR 1.769 SNIP 1.549
- ISI indexed (2013): ISI indexed yes
- Web of Science (2013): Indexed yes
- BFI (2012): BFI-level 2
- Scopus rating (2012): CiteScore 3.54 SJR 1.769 SNIP 1.549
- ISI indexed (2012): ISI indexed yes
- Web of Science (2012): Indexed yes
- BFI (2011): BFI-level 2
- Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
- ISI indexed (2011): ISI indexed yes
- Web of Science (2011): Indexed yes
- BFI (2010): BFI-level 2
- Scopus rating (2010): SJR 2.637 SNIP 2.263
- Web of Science (2010): Indexed yes
- BFI (2009): BFI-level 1
- Scopus rating (2009): SJR 3.077 SNIP 2.658
- Web of Science (2009): Indexed yes
- BFI (2008): BFI-level 1
- Scopus rating (2008): SJR 3.354 SNIP 2.384
- Web of Science (2008): Indexed yes
- Scopus rating (2007): SJR 3.443 SNIP 2.157
- Web of Science (2007): Indexed yes
- Scopus rating (2006): SJR 3.126 SNIP 2.319
- Web of Science (2006): Indexed yes
Description of the photorefractive response in polymers

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Podivilov, E. (Ekstern), Sturman, B. (Ekstern), Johansen, P. (Intern), Pedersen, T. (Ekstern)
Pages: 226-228
Publication date: 2001
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 26
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Observation of propagation of surface plasmon polaritons along line defects in a periodically corrugated metal surface

Propagation of surface plasmon polaritons (SPPs) excited in the wavelength range 720-830 nm at a corrugated gold-film surface with areas of 150-nm-wide and 45-nm-high scatterers arranged in a 380-nm-period triangular lattice containing line defects is investigated by use of near-field optical microscopy. We demonstrate that the SPP at 740-750 nm propagates along 2.2-μm-wide and 16-μm-long line defects with similar to 50% loss, whereas its propagation along narrower line defects is strongly damped and in periodically corrugated areas is inhibited. We observe significant deterioration of these effects for both longer and shorter wavelengths and conclude that the SPP guiding occurs as a result of the SPP bandgap effect in the structures.
<table>
<thead>
<tr>
<th>Year</th>
<th>BFI</th>
<th>Scopus Rating</th>
<th>Web of Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>BFI-level 2</td>
<td>CiteScore 3.89, SJR 1.79, SNIP 1.597</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2017</td>
<td>BFI-level 2</td>
<td>CiteScore 3.54, SJR 1.769, SNIP 1.549</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2016</td>
<td>BFI-level 2</td>
<td>CiteScore 3.54, SJR 2.429, SNIP 1.997</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2015</td>
<td>BFI-level 2</td>
<td>CiteScore 3.86, SJR 2.441, SNIP 2.453</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2014</td>
<td>BFI-level 2</td>
<td>CiteScore 3.69, SJR 2.519, SNIP 2.453</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2013</td>
<td>BFI-level 2</td>
<td>CiteScore 3.95, SJR 2.441, SNIP 2.058</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2012</td>
<td>BFI-level 2</td>
<td>CiteScore 2.263, SJR 2.637, SNIP 1.92</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2011</td>
<td>BFI-level 1</td>
<td>CiteScore 2.384, SJR 3.354, SNIP 2.384</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2010</td>
<td>BFI-level 2</td>
<td>CiteScore 2.157, SJR 3.443, SNIP 2.157</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2009</td>
<td>BFI-level 1</td>
<td>CiteScore 2.319, SJR 3.126, SNIP 2.319</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2008</td>
<td>BFI-level 1</td>
<td>CiteScore 2.658, SJR 3.077, SNIP 2.658</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2007</td>
<td>BFI-level 2</td>
<td>CiteScore 2.415, SJR 3.571, SNIP 2.415</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2006</td>
<td>BFI-level 1</td>
<td>CiteScore 2.726, SJR 3.523, SNIP 2.726</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2005</td>
<td>BFI-level 1</td>
<td>CiteScore 2.626, SJR 3.725, SNIP 2.626</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2004</td>
<td>BFI-level 1</td>
<td>CiteScore 2.176, SJR 3.776, SNIP 2.176</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2003</td>
<td>BFI-level 1</td>
<td>CiteScore 1.716, SJR 4.157, SNIP 1.716</td>
<td>Indexed yes</td>
</tr>
<tr>
<td>2002</td>
<td>BFI-level 1</td>
<td>CiteScore 1.685, SJR 3.926, SNIP 1.685</td>
<td>Indexed yes</td>
</tr>
</tbody>
</table>
Polarization instability of femtosecond pulse splitting in normally dispersive self-focusing media

General information
State: Published
Organisations: Department of Informatics and Mathematical Modeling
Authors: Schjødt-Eriksen, J. (Intern), Moloney, J. V. (Ekstern), Wright, E. M. (Ekstern), Feng, Q. (Ekstern), Christiansen, P. L. (Intern)
Pages: 78-80
Publication date: 2001
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 26
Issue number: 2
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Ultraviolet transparent silicon oxynitride waveguides for biochemical microsystems

The UV wavelength region is of great interest in absorption spectroscopy, which is employed for chemical analysis, since many organic compounds absorb in only this region. Germanium-doped silica, which is often preferred as the waveguide core material in optical devices for telecommunication, cannot accommodate guidance below 400 nm, owing to the presence of UV-absorbing centers. We show that silicon oxynitride (SiOxNy) waveguides exhibit very good UV performance. The propagation loss for 24-mum-wide SiOxNy waveguides was found to be similar to 1.0 dB/cm in the wavelength range 220-550 nm. The applicability of these waveguides was demonstrated in a biochemical microsystem consisting of multimode buried-channel SiOxNy waveguides that were monolithically integrated with microfluidic channels. Absorption measurements of a beta-blocking agent, propranolol, at 212-215 nm were performed. The detection Limit was reached at a concentration of 13 μM, with an optical path length of 500 mum (signal/noise ratio, 2).

General information
State: Published
Organisations: Department of Micro- and Nanotechnology
Authors: Mogensen, K. B. (Intern), Friis, P. (Intern), Hübner, J. (Intern), Petersen, N. J. (Intern), Jørgensen, A. M. (Intern), Telleman, P. (Intern), Kutter, J. P. (Intern)
Pages: 716-718
Publication date: 2001
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics letters
Volume: 26
Issue number: 10
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Photoexcited GaAs surfaces studied by transient terahertz time-domain spectroscopy

The transmission characteristics of an air-GaAs interface and the transient absorption and index spectra of the thin, photoexcited surface layer are investigated subsequent to excitation by a femtosecond laser pulse. We find that the total phase change and transmission of a terahertz (THz) probe pulse are dominated by interface effects. This observation has important implications in the interpretation of THz time-domain spectroscopy data of absorbing media. We also observe that the THz pulse apparently arrives at the detector as much as 60 fs earlier when it is transmitted through an optically excited GaAs wafer. This effect is fully explained in terms of a frequency-dependent transmission and phase shift at the air-GaAs interface and is not associated with superluminal propagation. (C) 2000 Optical Society of America.
Analysis of air-guiding photonic bandgap fibers

General information
State: Published
Organisations: Department of Photonics Engineering
Authors: Broeng, J. (Intern), Libori, S. E. B. (Intern), Søndergaard, T. (Intern), Bjarklev, A. O. (Intern)
Pages: 96-98
Publication date: 2000
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 25
Issue number: 2

Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Modification of pattern formation in doubly resonant second
We analyze pattern formation in doubly resonant intracavity second-harmonic generation in the presence of competing nondegenerate parametric downconversion. We show that for positive cavity detuning of the fundamental frequency the threshold for parametric oscillation is lower than that of transverse, pattern forming instabilities. The parametric oscillation strongly modifies the pattern dynamics found previously in a simplified analysis that neglects parametric instability [Phys. Rev. E 56, 4803 (1997)]. Stationary and dynamic patterns in the presence of parametric oscillation are found numerically

General information
State: Published
Organisations: Nanophotonics, Department of Photonics Engineering, Department of Informatics and Mathematical Modeling
Authors: Lodahl, P. (Intern), Bache, M. (Intern), Saffmann, M. (Ekstern)
Pages: 654-656
Publication date: 2000
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 25
Issue number: 9
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Phase-only optical encryption

We have implemented a phase-only optical encryption and decryption system with a readout based on the generalized phase-contrast method. The experimental system has been implemented with Liquid-crystal spatial light modulators to generate binary phase-encrypted masks and a decrypting key. A phase-contrast filter is used to display the phase information. (C) 2000 Optical Society of America.

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Mogensen, P. (Intern), Glückstad, J. (Intern)
Pages: 566-568
Publication date: 2000
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 25
Issue number: 8
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Self-guiding light in layered nonlinear media

We study the propagation of intense optical beams in layered Kerr media. With appropriate shapes, beams with a power close to the self-focusing threshold are shown to propagate over long distances as quasistationary waveguides in cubic media supporting a periodic nonlinear refractive index. (C) 2000 Optical Society of America OCIS codes: 190.3270, 260.5950, 230.7390, 350.5500.

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy, Department of Informatics and Mathematical Modeling
Authors: Bergé, L. (Ekstern), Mezentsev, V. K. (Ekstern), Juul Rasmussen, J. (Intern), Christiansen, P. L. (Intern), Gaididei, Y. B. (Ekstern)
Pages: 1037-1039
Publication date: 2000
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 25
Issue number: 14
ISSN (Print): 0146-9592
Ratings:

BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes

BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes

BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes

BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes

BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes

BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes

BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes

BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes

BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes

BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes

BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes

Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes

Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes

Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes

Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes

Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes

Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes

Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes

Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes

Scopus rating (1999): SJR 3.926 SNIP 1.685
Wavelength conversion by use of four-wave mixing in a novel optical loop configuration

General information
State: Published
Organisations: Department of Photonics Engineering
Authors: Yu, J. (Intern), Jeppesen, P. (Intern)
Pages: 393-395
Publication date: 2000
Main Research Area: Technical/natural sciences

Publication Information
Journal: Optics Letters
Volume: 25
Issue number: 6
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Bit rate and pulse width dependence of four-wave mixing of short optical pulses in semiconductor optical amplifiers

**General information**

State: Published
Organisations: Department of Photonics Engineering, Heinrich-Hertz-Institut, Fondazione Ugo Bordoni
Authors: Diez, S. (Ekstern), Mecozzi, A. (Ekstern), Mørk, J. (Intern)
Pages: 1675-1677
Publication date: 1999
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Optics Letters
Volume: 24
Issue number: 23
Ratings:

BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Critical slowing down of space-charge field relaxation in photorefractive sillenites

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Sturman, B. (Ekstern), Podivilov, E. (Ekstern), Pedersen, H. (Intern), Johansen, P. (Intern)
Pages: 1163-1165
Publication date: 1999
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 24
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Scopus rating (2001): SJR 3.776 SNIP 2.273
Web of Science (2001): Indexed yes
Scopus rating (2000): SJR 4.157 SNIP 1.716
Web of Science (2000): Indexed yes
Scopus rating (1999): SJR 3.926 SNIP 1.685
Original language: English
Source: orbit
Source-ID: 300009
Publication: Research - peer-review › Journal article – Annual report year: 1999
Low-temperature thermal fixing of holograms in photorefractive La$_3$Ga$_5$SiO$_{14}$:Pr$^{3+}$ crystal

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Nikolajsen, T. (Intern), Johansen, P. (Intern)
Pages: 1419-1421
Publication date: 1999
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 24
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Near-field imaging of interference pattern of counterpropagating evanescent waves

General information
State: Published
Organisations: Department of Photonics Engineering, LK A/S
Authors: Bozhevolnyi, S. I. (Intern), Bozhevolnaya, E. A. (Ekstern)
Pages: 747-749
Publication date: 1999
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 24
Issue number: 11
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Selecting optical patterns with spatial phase modulation

General information
State: Published
Organisations: Rise National Laboratory for Sustainable Energy
Authors: Wang, P. (Ekstern), Saffman, M. (Intern)
Pages: 1118-1120
Publication date: 1999
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 24
ISSN (Print): 0146-9592

Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Silica-air photonic crystal fiber design that permits waveguiding by a true photonic bandgap effect.

<table>
<thead>
<tr>
<th>General information</th>
</tr>
</thead>
<tbody>
<tr>
<td>State: Published</td>
</tr>
<tr>
<td>Organisations: Department of Photonics Engineering</td>
</tr>
<tr>
<td>Authors: Barkou, S. E. (Intern), Broeng, J. (Intern), Bjarklev, A. O. (Intern)</td>
</tr>
<tr>
<td>Pages: 46-48</td>
</tr>
<tr>
<td>Publication date: 1999</td>
</tr>
<tr>
<td>Main Research Area: Technical/natural sciences</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Publication information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journal: Optics Letters</td>
</tr>
<tr>
<td>Volume: 24</td>
</tr>
<tr>
<td>Issue number: 1</td>
</tr>
<tr>
<td>Ratings:</td>
</tr>
<tr>
<td>BFI (2018): BFI-level 2</td>
</tr>
<tr>
<td>Web of Science (2018): Indexed yes</td>
</tr>
<tr>
<td>BFI (2017): BFI-level 2</td>
</tr>
<tr>
<td>Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597</td>
</tr>
<tr>
<td>Web of Science (2017): Indexed yes</td>
</tr>
<tr>
<td>BFI (2016): BFI-level 2</td>
</tr>
<tr>
<td>Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549</td>
</tr>
<tr>
<td>Web of Science (2016): Indexed yes</td>
</tr>
<tr>
<td>BFI (2015): BFI-level 2</td>
</tr>
<tr>
<td>Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53</td>
</tr>
<tr>
<td>Web of Science (2015): Indexed yes</td>
</tr>
<tr>
<td>BFI (2014): BFI-level 2</td>
</tr>
<tr>
<td>Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86</td>
</tr>
<tr>
<td>Web of Science (2014): Indexed yes</td>
</tr>
<tr>
<td>BFI (2013): BFI-level 2</td>
</tr>
<tr>
<td>Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95</td>
</tr>
<tr>
<td>ISI indexed (2013): ISI indexed yes</td>
</tr>
<tr>
<td>Web of Science (2013): Indexed yes</td>
</tr>
<tr>
<td>BFI (2012): BFI-level 2</td>
</tr>
<tr>
<td>Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52</td>
</tr>
<tr>
<td>ISI indexed (2012): ISI indexed yes</td>
</tr>
<tr>
<td>Web of Science (2012): Indexed yes</td>
</tr>
<tr>
<td>BFI (2011): BFI-level 2</td>
</tr>
<tr>
<td>Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69</td>
</tr>
<tr>
<td>ISI indexed (2011): ISI indexed yes</td>
</tr>
<tr>
<td>Web of Science (2011): Indexed yes</td>
</tr>
<tr>
<td>BFI (2010): BFI-level 2</td>
</tr>
<tr>
<td>Scopus rating (2010): SJR 2.637 SNIP 2.263</td>
</tr>
</tbody>
</table>
Spatial switching of quadratic solitons in engineered quasi-phase-matched structures [CBC2]

General information

State: Published
Organisations: Department of Informatics and Mathematical Modeling
Authors: Clausen, C. A. B. (Intern), Torner, L. (Ekstern)
Pages: 7-9
Publication date: 1999
Main Research Area: Technical/natural sciences

Publication information

Journal: Optics Letters
Volume: 24
Issue number: 1
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Adiabatic shaping of quadratic solitons [CBC2]

General information
State: Published
Organisations: Department of Informatics and Mathematical Modeling
Authors: Clausen, C. A. B. (Intern), Tomer, L. (Ekstern), Fejer, M. F. (Ekstern)
Pages: 903-905
Publication date: 1998
Main Research Area: Technical/natural sciences

Publication information
Circular solitons do not exist in photorefractive media

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Saffman, M. (Intern), Zozulya, A. (Ekstern)
Pages: 1579-1581
Publication date: 1998
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 23
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Photorefractive two-step recording in a piezoelectric La$_3$Ga$_5$SiO$_{14}$ crystal doped with praseodymium

**General information**

State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Nikolajsen, T. (Intern), Johansen, P. (Intern), Dubovik, E. (Ekstern), Batirov, T. (Ekstern), Djalalov, R. (Ekstern)
Pages: 1164-1166
Publication date: 1998
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Optics Letters
Volume: 23
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
Single-mode operation of a laser-diode array with frequency-selective phase-conjugate feedback

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Løbel, M. (Ekstern), Petersen, P. (Intern), Johansen, P. (Intern)
Pages: 825-827
Publication date: 1998
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 23
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
Spatiotemporal collapse in a nonlinear waveguide with a randomly fluctuating refractive index

General information
State: Published
Organisations: Department of Informatics and Mathematical Modeling
Authors: Christiansen, P. L. (Intern), Gaididei, Y. B. (Ekstern)
Pages: 1090-1092
Publication date: 1998
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 23
Issue number: 14
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Transverse modulational instability of counterpropagating quasi-phase-matched beams in a quadratically nonlinear medium

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Lushnikov, P. (Ekstern), Lodahl, P. (Intern), Saffman, M. (Intern)
Pages: 1650-1652
Publication date: 1998
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 23
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Effect of a fluctuating phase mismatch on spatial solitons in quadratic media [CBC1]

General information
State: Published
Organisations: Department of Informatics and Mathematical Modeling
Authors: Clausen, C. A. B. (Intern), Bang, O. (Ekstern), Kivshar, Y. (Ekstern), Christiansen, P. L. (Intern)
Pages: 271-273
Publication date: 1997
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 22 (5)
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Modulational instability and pattern formation in the field of noncollinear pump beams

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Mamaev, A. (Ekstern), Saffman, M. (Intern)
Pages: 283-285
Publication date: 1997
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 22
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Thermal self-frequency locking of doubly-resonant optical parametric oscillator

General information
State: Published
Organisations: Department of Physics
Authors: Hansen, P. (Ekstern), Buchhave, P. (Intern)
Pages: 1074-1076
Publication date: 1997
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 22
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
We show far what is believed to be the first time that it is possible to generate 10,000 rapid write, read, and erase cycles optically in an azobenzene sidechain liquid-crystalline polyester. We do this by exposing the film alternately to visible light from an argon laser at 488 nm and ultraviolet light from a krypton laser at 351 nm. The efficiency of the system shows several exponential decays, presumably associated with the azobenzene chromophores' aligning out of the plane of the film and the lifetime of the cis state of the azobenzene. A local temperature increase may also play a role. However, there is enough contrast even after 10,000 cycles to permit a clear distinction between the maximum and the minimum anisotropy. As the anisotropy is stable between erasures, this method could have immediate applications for optical storage.
Analysis of polarization-insensitive optical phase conjugation in a dispersion-shifted fiber

General information
State: Published
Organisations: Department of Electromagnetic Systems, Technical University of Denmark
Authors: Zhang, X. (Ekstern), Jørgensen, B. F. (Intern)
Pages: 791-793
Publication date: 1996
Main Research Area: Technical/natural sciences

Publication information
Journal: J. of Optics Letters
Volume: 21
Issue number: 11
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Anisotropic photoconductivity and current deflection induced in Bi₁₂SiO₂₀ by high contrast interference pattern.

**General information**

State: Published
Organisations: Department of Physics
Authors: Kukhtarev, N. (Ekstern), Lyuksyutov, S. (Ekstern), Buchhave, P. (Intern), Caulfield, H. (Ekstern), Vasnetsov, M. (Ekstern)
Pages: 1891-1893
Publication date: 1996
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Optics Letters
Volume: 21
Issue number: 23
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Polarization sensitivity of the nonlinear amplifying loop mirror

General information
State: Published
Organisations: Department of Electromagnetic Systems, Technical University of Denmark
Authors: Clausen, B. C. (Ekstern), Povlsen, J. H. (Ekstern), Rottwitt, K. (Ekstern)
Pages: 1535-1537
Publication date: 1996
Main Research Area: Technical/natural sciences

Publication information
Journal: J. of Optics Letters
Volume: 21
Issue number: 19
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 3.354 SNIP 2.384
Web of Science (2008): Indexed yes
Scopus rating (2007): SJR 3.443 SNIP 2.157
Web of Science (2007): Indexed yes
Scopus rating (2006): SJR 3.126 SNIP 2.319
Web of Science (2006): Indexed yes
Scopus rating (2005): SJR 3.245 SNIP 2.451
Web of Science (2005): Indexed yes
Scopus rating (2004): SJR 3.523 SNIP 2.726
Web of Science (2004): Indexed yes
Scopus rating (2003): SJR 3.725 SNIP 2.626
Web of Science (2003): Indexed yes
Scopus rating (2002): SJR 3.571 SNIP 2.415
Web of Science (2002): Indexed yes
Polarization sensitivity of the nonlinear amplifying loop mirror. [CBC1]

General information
State: Published
Organisations: Department of Informatics and Mathematical Modeling, Department of Electromagnetic Systems, Department of Photonics Engineering
Authors: Clausen, C. A. B. (Intern), Povlsen, J. H. (Intern), Rottwitt, K. (Intern)
Pages: 1535-1537
Publication date: 1996
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 21
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
We report on investigations of the angular distribution of the radiation emitted from a terahertz antenna system equipped with a truncated spherical silicon lens. The pattern is calculated by wide-angle interference principles and Huygens-Fresnel diffraction theory. Experimental determination of the radiation pattern is performed by spatially resolved terahertz time-domain spectroscopy. Good agreement between theory and experiment is obtained, and we find that the terahertz beam can be represented by a Gaussian beam emitted from a circular aperture equal to the diameter of the lens.

RADIATION-PATTERNS FROM LENS-COUPLED TERAHERTZ ANTENNAS

We report on investigations of the angular distribution of the radiation emitted from a terahertz antenna system equipped with a truncated spherical silicon lens. The pattern is calculated by wide-angle interference principles and Huygens-Fresnel diffraction theory. Experimental determination of the radiation pattern is performed by spatially resolved terahertz time-domain spectroscopy. Good agreement between theory and experiment is obtained, and we find that the terahertz beam can be represented by a Gaussian beam emitted from a circular aperture equal to the diameter of the lens.

General information
State: Published
Organisations: Aarhus University
Authors: Jepsen, P. U. (Intern), Keiding, S. R. (Ekstern)
Number of pages: 3
Pages: 807-809
Publication date: 15 Apr 1995
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 20
Issue number: 8
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Diode-pumped single-frequency Nd:YVO4 laser with a set of coupled resonators

350 mW of single-frequency power from a diode-pumped solid-state Nd:YVO4 laser has been obtained from a coupled resonator design without any intracavity elements. Single-frequency operation was obtained by use of a very short laser rod and a coupled resonator design. The two coupled resonators were formed by the two faces of a very short Nd:YVO4 laser crystal and an output coupling mirror. The interaction of the two coupled cavities caused a modification of the eigenmodes supporting laser action in a single longitudinal mode. This design, which is extremely simple, represents a cost-efficient way of obtaining single-frequency output.
Incoherent enhancement of the photorefractive response in Bi$_2$SiO$_5$ by subharmonic interaction

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Pedersen, H. (Intern), Johansen, P. (Intern)
Pages: 689-691
Publication date: 1995
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 20
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
Observation of spontaneously frequency-shifted beam fanning in photorefractive Bi$_{12}$SiO$_{20}$

**General information**
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Pedersen, H. (Intern), Andersen, P. E. (Intern), Johansen, P. (Intern)
Pages: 2475-2477
Publication date: 1995
Main Research Area: Technical/natural sciences

**Publication information**
Journal: Optics Letters
Volume: 20
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Photoanisotropic incoherent to coherent converter using a bacteriorhodopsin thin film

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Imam, H. (Intern), Lindvold, L. (Intern), Ramanujam, P. (Intern)
Pages: 225-227
Publication date: 1995
Spontaneous pattern formation in a thin film of bacteriorhodopsin with mixed absorptive dispersive nonlinearity

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Glückstad, J. (Intern), Saffman, M. (Intern)
Pages: 551-553
Publication date: 1995
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 20
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Diffraction from a wavelet point of view: Comment

**General information**

State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Jørgensen, T. (Intern), Glückstad, J. (Intern)
Pages: 423
Publication date: 1994
Main Research Area: Technical/natural sciences

**Publication information**

Journal: Optics Letters
Volume: 19
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Observation of angularly tilted subharmonic gratings in photorefractive bismuth silicon oxide

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Pedersen, H. (Intern), Johansen, P. (Intern)
Pages: 1418-1420
Publication date: 1994
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 19
ISSN (Print): 0146-9592
<table>
<thead>
<tr>
<th>Year</th>
<th>BFI Level</th>
<th>Scopus Rating</th>
<th>Web of Science Indexed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>2</td>
<td>CiteScore 3.89 SJR 1.79 SNIP 1.597</td>
<td>yes</td>
</tr>
<tr>
<td>2017</td>
<td>2</td>
<td>SJR 2.013 SNIP 1.53 CiteScore 3.53</td>
<td>yes</td>
</tr>
<tr>
<td>2016</td>
<td>2</td>
<td>SJR 2.429 SNIP 1.997 CiteScore 3.86</td>
<td>yes</td>
</tr>
<tr>
<td>2015</td>
<td>2</td>
<td>SJR 2.541 SNIP 2.058 CiteScore 3.95</td>
<td>yes</td>
</tr>
<tr>
<td>2014</td>
<td>2</td>
<td>SJR 2.519 SNIP 2.453 CiteScore 3.69</td>
<td>yes</td>
</tr>
<tr>
<td>2013</td>
<td>2</td>
<td>SJR 2.441 SNIP 2.058 CiteScore 3.95</td>
<td>yes</td>
</tr>
<tr>
<td>2012</td>
<td>2</td>
<td>SJR 2.577 SNIP 1.92 CiteScore 3.52</td>
<td>yes</td>
</tr>
<tr>
<td>2011</td>
<td>2</td>
<td>SJR 2.519 SNIP 2.453 CiteScore 3.69</td>
<td>yes</td>
</tr>
<tr>
<td>2010</td>
<td>2</td>
<td>SJR 2.637 SNIP 2.263 CiteScore 3.95</td>
<td>yes</td>
</tr>
<tr>
<td>2009</td>
<td>1</td>
<td>SJR 3.077 SNIP 2.658 CiteScore 3.95</td>
<td>yes</td>
</tr>
<tr>
<td>2008</td>
<td>1</td>
<td>SJR 3.354 SNIP 2.384 CiteScore 3.95</td>
<td>yes</td>
</tr>
<tr>
<td>2007</td>
<td>1</td>
<td>SJR 3.443 SNIP 2.157 CiteScore 3.95</td>
<td>yes</td>
</tr>
<tr>
<td>2006</td>
<td>1</td>
<td>SJR 3.126 SNIP 2.319 CiteScore 3.95</td>
<td>yes</td>
</tr>
<tr>
<td>2005</td>
<td>1</td>
<td>SJR 3.245 SNIP 2.451 CiteScore 3.95</td>
<td>yes</td>
</tr>
<tr>
<td>2004</td>
<td>1</td>
<td>SJR 3.523 SNIP 2.726 CiteScore 3.95</td>
<td>yes</td>
</tr>
<tr>
<td>2003</td>
<td>1</td>
<td>SJR 3.725 SNIP 2.626 CiteScore 3.95</td>
<td>yes</td>
</tr>
<tr>
<td>2002</td>
<td>1</td>
<td>SJR 3.571 SNIP 2.415 CiteScore 3.95</td>
<td>yes</td>
</tr>
<tr>
<td>2001</td>
<td>1</td>
<td>SJR 3.776 SNIP 2.273 CiteScore 3.95</td>
<td>yes</td>
</tr>
<tr>
<td>2000</td>
<td>1</td>
<td>SJR 4.157 SNIP 1.716 CiteScore 3.95</td>
<td>yes</td>
</tr>
<tr>
<td>1999</td>
<td>1</td>
<td>SJR 3.926 SNIP 1.685 CiteScore 3.95</td>
<td>yes</td>
</tr>
</tbody>
</table>
Side-chain liquid-crystalline polyesters for optical information storage

We report erasable holographic recording with a resolution of at least 2500 lines/mm on unoriented films of side-chain liquid-crystalline polyesters. Recording energies of approximately 1 J/cm² have been used. We have obtained a diffraction efficiency of approximately 30% with polarization recording of holograms. The holograms can be erased by heating them to approximately 80-degrees-C for approximately 2 min and are available for rerecording.

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy, University of Pisa
Authors: Hvilsted, S. (Intern), Andruzzi, F. (Ekstern), Ramanujam, P. (Intern)
Pages: 1234-1236
Publication date: 1992
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 17
Issue number: 17
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Web of Science (2009): Indexed yes
Impact of quadratic phase factors on optical Fourier transforms and imaging

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Skov Jensen, A. (Ekstern)
Pages: 886-888
Publication date: 1991
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 16
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
Optical system defect propagation in ABCD systems

We describe how optical system defects (tilt/jitter, decenter, and despace) propagate through an arbitrary paraxial optical system that can be described by an ABCD ray transfer matrix. A pedagogical example is given that demonstrates the effect of alignment errors on a typical optical system.

© 1988 Optical Society of America

General information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: McKinley, W. (Ekstern), Yura, H. (Ekstern), Hanson, S. G. (Intern)
Pages: 333-335
Publication date: 1988
**Main Research Area:** Technical/natural sciences

**Publication information**
- **Journal:** Optics Letters
- **Volume:** 13
- **Issue number:** 5
- **ISSN (Print):** 0146-9592

**Ratings:**
- BFI (2018): BFI-level 2
- Web of Science (2018): Indexed yes
- BFI (2017): BFI-level 2
- Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
- Web of Science (2017): Indexed yes
- BFI (2016): BFI-level 2
- Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
- Web of Science (2016): Indexed yes
- BFI (2015): BFI-level 2
- Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
- Web of Science (2015): Indexed yes
- BFI (2014): BFI-level 2
- Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
- Web of Science (2014): Indexed yes
- BFI (2013): BFI-level 2
- Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
- ISI indexed (2013): ISI indexed yes
- Web of Science (2013): Indexed yes
- BFI (2012): BFI-level 2
- Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
- ISI indexed (2012): ISI indexed yes
- Web of Science (2012): Indexed yes
- BFI (2011): BFI-level 2
- Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
- ISI indexed (2011): ISI indexed yes
- Web of Science (2011): Indexed yes
- BFI (2010): BFI-level 2
- Scopus rating (2010): SJR 2.637 SNIP 2.263
- Web of Science (2010): Indexed yes
- BFI (2009): BFI-level 1
- Scopus rating (2009): SJR 3.077 SNIP 2.658
- Web of Science (2009): Indexed yes
- BFI (2008): BFI-level 1
- Scopus rating (2008): SJR 3.354 SNIP 2.384
- Web of Science (2008): Indexed yes
- Scopus rating (2007): SJR 3.443 SNIP 2.157
- Web of Science (2007): Indexed yes
- Scopus rating (2006): SJR 3.126 SNIP 2.319
- Web of Science (2006): Indexed yes
- Scopus rating (2005): SJR 3.245 SNIP 2.451
- Web of Science (2005): Indexed yes
- Scopus rating (2004): SJR 3.523 SNIP 2.726
- Web of Science (2004): Indexed yes
- Scopus rating (2003): SJR 3.725 SNIP 2.626
- Web of Science (2003): Indexed yes
- Scopus rating (2002): SJR 3.571 SNIP 2.415
- Web of Science (2002): Indexed yes
Simple Theory for Degenerate Four-Wave Mixing in Photorefractive Media

General Information
State: Published
Organisations: Risø National Laboratory for Sustainable Energy
Authors: Petersen, P. (Intern), Johansen, P. (Intern)
Publication date: 1988
Main Research Area: Technical/natural sciences

Publication Information
Journal: Optics Letters
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.429 SNIP 1.997 CiteScore 3.86
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.441 SNIP 2.058 CiteScore 3.95
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.577 SNIP 1.92 CiteScore 3.52
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.519 SNIP 2.453 CiteScore 3.69
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.637 SNIP 2.263
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 3.077 SNIP 2.658
Modulational instability of short pulses in long optical fibers

The effect of time-derivative nonlinearity is incorporated into the study of the modulational instability of heat pulses propagating through long optical fibers. Conditions for soliton formation are discussed.

General information
State: Published
Organisations: Plasma Physics and Technology Programme, Risø National Laboratory for Sustainable Energy, Risø National Laboratory
Authors: Shukla, P. K. (Ekstern), Juul Rasmussen, J. (Intern)
Pages: 171-173
Publication date: 1986
Main Research Area: Technical/natural sciences

Publication information
Journal: Optics Letters
Volume: 11
Issue number: 3
ISSN (Print): 0146-9592
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 3.89 SJR 1.79 SNIP 1.597
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 3.54 SJR 1.769 SNIP 1.549
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.013 SNIP 1.53 CiteScore 3.53
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2