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Plasmonics and Metamaterials

Publications:

Mode conversion enables optical pulling force in photonic crystal waveguides
Publication: Research - peer-review › Journal article – Annual report year: 2017

Analytical solutions for waves in spherically- and cylindrically-symmetric inhomogeneous media
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Comparison of Five Computational Methods for Computing Q Factors in Photonic Crystal Membrane Cavities
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Magnetic field concentration with coaxial silicon nanocylinders in the optical spectral range
Publication: Research - peer-review › Journal article – Annual report year: 2017

Matter-Wave Tractor Beams
Publication: Research - peer-review › Journal article – Annual report year: 2017

Non-Diffractive Tractor Beams
Novitsky, A., Gao, D., Gorlach, A. A., Qiu, C-W. & Lavrinenko, A. 2017 Proceedings of 19th International Conference on Transparent Optical Networks. IEEE, 4 p. We.C4.2
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Pulling cylindrical particles using a soft-nonparaxial tractor beam
Novitsky, A., Ding, W., Wang, M., Gao, D., Lavrinenko, A. & Qiu, C-W. 2017 In : Scientific Reports. 7, 1, 10 p., 652
Publication: Research - peer-review › Journal article – Annual report year: 2017

Spherically symmetric inhomogeneous bianisotropic media: Wave propagation and light scattering
Publication: Research - peer-review › Journal article – Annual report year: 2017

Controlling Lateral Fano Interference Optical Force with Au-Ge2Sb2Te5 Hybrid Nanostructure
Cao, T., Bao, J., Mao, L., Zhang, T., Novitsky, A., Nieto-Vesperinas, M. & Qiu, C-W. 2016 In : ACS Photonics. 3, 10, p. 1934-1942
Publication: Research - peer-review › Journal article – Annual report year: 2016

Operator approach to effective medium theory to overcome a breakdown of Maxwell Garnett approximation
Anisotropic anti-rod dimer metamaterial film for terahertz polarization manipulation
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Asymmetric transmission in planar chiral split-ring metamaterials: Microscopic Lorentz-theory approach
Publication: Research - peer-review › Journal article – Annual report year: 2012

Fabrication activity for nanophotonics
Publication: Research - peer-review › Paper – Annual report year: 2012

Fabrication and characterization of terahertz anisotropic anti-rod dimer planar metamaterials
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Field approach in the transformation optics concept
Publication: Research - peer-review › Journal article – Annual report year: 2012

Graphene hyperlens for terahertz radiation
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Light modulation abilities of nanostructures
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2012

Material-Independent and Size-Independent Tractor Beams for Dipole Objects
Publication: Research - peer-review › Journal article – Annual report year: 2012

Metamaterials modelling, fabrication and characterisation techniques
Publication: Research - peer-review › Paper – Annual report year: 2012

Metamaterials modelling, fabrication, and characterisation techniques
Publication: Research - peer-review › Conference article – Annual report year: 2013

Non-resonant terahertz field enhancement in periodically arranged nanoslits
Publication: Research - peer-review › Journal article – Annual report year: 2012
Optical waveguide mode control by nanoslit-enhanced terahertz field
Publication: Research - peer-review › Journal article – Annual report year: 2012

Passive THz metamaterials
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Ultrabroadband terahertz spectroscopy of chalcogenide glasses
Publication: Research - peer-review › Journal article – Annual report year: 2012

Ultrabroadband THz spectroscopic investigation of As$_2$S$_3$
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Asymmetric transmission in planar chiral metamaterials: microscopic explanation
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Field-based transformation optics
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Ideal conversion of surface waves: ИДЕАЛЬНАЯ КОНВЕРСИЯ ПОВЕРХНОСТНЫХ ВОЛН
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Inverse problem in transformation optics
Publication: Research - peer-review › Journal article – Annual report year: 2011

Invisibility devices with realistic material parameters: УСТРОЙСТВА НЕВИДИМОСТИ С УЧЕТОМ РЕАЛЬНЫХ МАТЕРИАЛЬНЫХ ПАРАМЕТРОВ СРЕД
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Microscopic model of the THz field enhancement in a metal nanoslit
Publication: Research - peer-review › Journal article – Annual report year: 2011

New Circular Fractal Sensors for Near-infrared Wavelengths
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2011
Non-paraxial beam to push and pull microparticles
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Single Gradientless Light Beam Drags Particles as Tractor Beams
Publication: Research - peer-review › Journal article – Annual report year: 2011

Wavelength-independent field enhancement in subwavelength gratings
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Conversion from surface wave to surface wave on reflection
Publication: Research - peer-review › Journal article – Annual report year: 2010

Fast closed-form calculation of THz field enhancement in a metal nanoslit
Novitsky, A. & Lavrinenko, A. 2010
Publication: Research - peer-review › Poster – Annual report year: 2010

THz field enhancement by a metal nanoslit: a simple model
Novitsky, A. & Lavrinenko, A. 2010
Publication: Research - peer-review › Poster – Annual report year: 2010

Transformation-based spherical cloaks designed by an implicit transformation-independent method: theory and optimization
Publication: Research - peer-review › Journal article – Annual report year: 2009

Projects:

Dark-field hyperlens: Superresolution imaging and label-free sensing device for biological applications
Lavrinenko, A., Novitsky, A., Takayama, O., Shkondin, E. & Repán, T.
01/06/2016 → 06/09/2019
Project

THz Control over an Optical Wave
01/04/2010 → 31/03/2013
Project