Chung, Il-Sug

Research outputs:

All-Si photodetector for telecommunication wavelength based on subwavelength grating structure and critical coupling
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

Compact dielectric cavities based on frozen bound states in the continuum
Research output: Chapter in Book/Report/Conference proceeding › Conference abstract in proceedings – Annual report year: 2017 › Research › peer-review

Dynamical dispersion engineering in coupled vertical cavities employing a high-contrast grating
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

Efficient quality-factor estimation of a vertical cavity employing a high-contrast grating
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2017 › Research › peer-review

Hybrid Si-on-chip Lasers with Nano Structures
Research output: Chapter in Book/Report/Conference proceeding › Conference abstract in proceedings – Annual report year: 2017 › Research › peer-review

Quasi bound states in the continuum with few unit cells of photonic crystal slab
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

Reciprocal-Space Engineering of Quasi-Bound States in the Continuum in Photonic Crystal Slabs for High-Q Microcavities
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2018 › Research › peer-review

Vertical cavity laser
Research output: Patent › Patent – Annual report year: 2016 › Research

Hybrid grating reflectors: Origin of ultrabroad stopband
Research output: Contribution to journal › Journal article – Annual report year: 2016 › Research › peer-review

Hybrid III-V on Si gratings as a broadband reflector and a high-Q resonator
Research output: Contribution to journal › Journal article – Annual report year: 2016 › Research › peer-review
Hybrid III-V/SOI resonant cavity enhanced photodetector

Hybrid III-V/SOI Resonant Cavity Photodetector

Hybrid vertical cavity laser for silicon photonics light source integration (invited paper)

Numerical Investigation of Vertical Cavity Lasers With High-Contrast Gratings Using the Fourier Modal Method

Ultrabroadband Hybrid III-V/SOI Grating Reflector for On-chip Lasers

Ultrahigh-speed Si-integrated on-chip laser with tailored dynamic characteristics

Vcsel structure

A New Compact Broadband Reflector: The Hybrid Grating

Effect of In-plane Mirror Dispersion on Vertical Cavities Based on High-Contrast Grating Mirrors

Hybrid III-V-on-Si Laser with Ultra-low Energy Consumption

Hybrid III-V/SOI single-mode vertical-cavity laser with in-plane emission into a silicon waveguide
Hybrid vertical-cavity laser with lateral emission into a silicon waveguide

III-V/SOI vertical cavity laser structure for 120 Gbit/s speed

III-V/SOI vertical cavity laser with in-plane output into a Si waveguide

Polarization-Independent Wideband High-index-Contrast Grating Mirror

Study on differences between high contrast grating reflectors for TM and TE polarizations and their impact on VCSEL designs
Chung, I-S., 2015, In : Optics Express. 23, 10, 10 p., 16730.

Ultracompact resonator with high quality-factor based on a hybrid grating structure

Vertical-Cavity In-plane Heterostructures: Physics and Applications

130-nm tunable grating-mirror VCSEL

Comparison of Different Numerical Methods for Quality Factor Calculation of Nano and Micro Photonic Cavities

Electrical Injection Schemes for Nanolasers

Hybrid grating reflector with high reflectivity and broad bandwidth
Mode selection laser

Wavelength sweepable laser source

1060-nm Tunable Monolithic High Index Contrast Subwavelength Grating VCSEL
Research output: Contribution to journal › Journal article – Annual report year: 2013 › Research › peer-review

Effect of External Optical Feedback for Nano-laser Structures
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2013 › Research › peer-review

Electrical injection schemes for nanolasers
Research output: Contribution to journal › Conference article – Annual report year: 2013 › Research › peer-review

Hybrid III-V-on-Si Vertical Cavity laser for Optical Interconnects
Research output: Contribution to journal › Conference article – Annual report year: 2013 › Research › peer-review

Laser device

Polarization-independent high-index contrast grating and its fabrication tolerances
Research output: Contribution to journal › Journal article – Annual report year: 2013 › Research › peer-review

Resonant MEMS tunable VCSEL
Research output: Contribution to journal › Journal article – Annual report year: 2013 › Research › peer-review

Speed enhancement in VCSELs employing grating mirrors
Research output: Contribution to journal › Conference article – Annual report year: 2013 › Research › peer-review

Tunable Resonant-Cavity-Enhanced Photodetector with Double High-Index-Contrast Grating Mirrors
Research output: Contribution to journal › Conference article – Annual report year: 2013 › Research › peer-review
Ultrahigh-speed hybrid laser for silicon photonic integrated chips
Research output: Chapter in Book/Report/Conference proceeding › Conference abstract in proceedings – Annual report year: 2014 › Research › peer-review

VCSELs with a high-index-contrast grating for mode-division multiplexing
Ran, Q. & Chung, I-S., 2013
Research output: Non-textual form › Sound/Visual production (digital) – Annual report year: 2013 › Research

Fabrication activity for nanophotonics
Research output: Contribution to conference › Paper – Annual report year: 2012 › Research › peer-review

Low-energy-consumption hybrid lasers for silicon photonics
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2012 › Research › peer-review

Reflectivity-modulated grating-mirror
Research output: Patent › Patent – Annual report year: 2012 › Research

VCSELs and silicon light sources exploiting SOI grating mirrors
Research output: Contribution to journal › Conference article – Annual report year: 2012 › Research › peer-review

Vertical-cavity surface-emitting laser vapor sensor using swelling polymer reflection modulation
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review

Wave-front-engineered grating mirrors for VCSELs
Research output: Contribution to journal › Conference article – Annual report year: 2012 › Research › peer-review

High-index-contrast grating reflector with beam steering ability for the transmitted beam
Research output: Contribution to journal › Journal article – Annual report year: 2011 › Research › peer-review

Hybrid Si/III-V vertical-cavity laser for silicon photonics
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2011 › Research › peer-review

Hybrid vertical-cavity laser

Modelling of photonic-crystal VCSELs with semi-vectorial and vectorial models
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2011 › Research › peer-review
80-nm-tunable high-index-contrast subwavelength grating long-wavelength VCSEL: Proposal and numerical simulations
Research output: Contribution to journal › Conference article – Annual report year: 2010 › Research › peer-review

Broadband MEMS-tunable high-index-contrast subwavelength grating long-wavelength VCSEL
Research output: Contribution to journal › Journal article – Annual report year: 2010 › Research › peer-review

High-index-contrast subwavelength grating VCSEL
Research output: Contribution to journal › Conference article – Annual report year: 2010 › Research › peer-review

Hybrid vertical cavity laser
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2010 › Research › peer-review

Hybrid Vertical-Cavity Laser
Research output: Patent › Patent – Annual report year: 2010 › Research

Monomode surface emitting laser: (Third year activity report)
Chung, I-S. & Mørk, J., 2010
Research output: Book/Report › Report – Annual report year: 2010 › Research › peer-review

Numerical methods for modeling photonic-crystal VCSELs
Research output: Contribution to journal › Journal article – Annual report year: 2010 › Research › peer-review

Optimization of VCSELs for Self-Mixing Sensing
Research output: Contribution to journal › Journal article – Annual report year: 2010 › Research › peer-review

Polymer-coated vertical-cavity surface-emitting laser diode vapor sensor
Research output: Contribution to journal › Conference article – Annual report year: 2010 › Research › peer-review

Silicon-photonics light source realized by III-V/Si grating-mirror laser
Research output: Contribution to journal › Journal article – Annual report year: 2010 › Research › peer-review

Transverse-mode-selectable microlens vertical-cavity surface-emitting laser
Research output: Contribution to journal › Journal article – Annual report year: 2010 › Research › peer-review

Acetone vapor sensing using a vertical cavity surface emitting laser diode coated with polystyrene
Research output: Chapter in Book/Report/Conference proceeding › Conference abstract in proceedings – Annual report year: 2009 › Research › peer-review
Advanced vectorial simulation of VCSELs with nano structures invited paper
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2009 › Research › peer-review

Selectively-pumped grating-mirror long-wavelength VCSEL
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2009 › Research › peer-review

The optical chip: high speed and diminutive size
Research output: Chapter in Book/Report/Conference proceeding › Book chapter – Annual report year: 2009 › Research › Communication

Time-resolved measurement of the light-current characteristic of a coated VCSEL diode in acetone vapour
Research output: Contribution to conference › Conference abstract for conference – Annual report year: 2009 › Research › peer-review

Vectorial analysis of dielectric photonic crystal VCSEL
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2009 › Research › peer-review

Broadband subwavelength grating mirror and its application to vertical-cavity surface-emitting laser
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2008 › Research › peer-review

Nanophotonics: Semiconductor Optical Devices
Research output: Contribution to conference › Poster – Annual report year: 2008 › Research › peer-review

Subwavelength grating-mirror VCSEL with a thin oxide gap
Research output: Contribution to journal › Journal article – Annual report year: 2008 › Research › peer-review

Finite-difference time-domain analysis of micro-lens integrated vertical-cavity surface-emitting lasers
Research output: Contribution to conference › Poster – Annual report year: 2007 › Research › peer-review

Opto-VLSI-based reconfigurable free-space optical interconnects architecture
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2007 › Research › peer-review

A method to tune the cavity-mode wavelength of resonant cavity-enhanced photodetectors for bidirectional optical interconnects
High Speed (2.5Gbps) reconfigurable inter-chip optical interconnects using opto-VLSI processors

Effect of outermost layers on resonant cavity enhanced devices

Projects:

VCSEL’S til medicinsk diagnosticering
Ansbæk, T., Yvind, K., Chung, I., Larsson, D., Hvam, J. M., Amann, M. C. & Birkedal, D.
Technical University of Denmark
01/11/2008 → 20/09/2012
Project: PhD

Ultrahigh-speed Si-integrated on-chip laser
Tandukar, S., Chung, I., Ottaviano, L., Frandsen, L. H., Almuneau, G. & Hammar, M.
Samfinansieret - Andet
15/11/2015 → 14/01/2019
Project: PhD

Ultrahigh-speed hybrid III-C-on-Si lasers
Topic, V., Chung, I., Ottaviano, L., Yvind, K., Birkedal, D. & Bakir, B. B.
Samfinansieret - Andet
15/03/2015 → 14/02/2019
Project: PhD

Electrically pumped nanolaser for terabit communication
Lupi, A., Yvind, K., Chung, I., Oxenløwe, L. K., Birkedal, D. & Roelkens, G.
Eksternt finansieret virksomhed
15/03/2012 → 17/02/2016
Project: PhD

Hybrid III-V-on-Si laser with ultralow energy consumption
Forskningsrådetsfinansiering
01/02/2013 → 04/05/2016
Project: PhD

Vertical-cavity laser with a novel grating mirror
Park, G. C., Chung, I., Semenova, E., Frandsen, L. H., Heck, M. & Kapon, E.
Technical University of Denmark
15/02/2013 → 15/06/2016
Project: PhD

MEMS tunable nano-structured photodetector
Learkthanakhachon, S., Chung, I., Tafur Monroy, I., Yvind, K., Gregersen, N., Birkedal, D. & Larsson, A. G.
Technical University of Denmark
15/09/2011 → 18/06/2015
Project: PhD

End-to-end energy efficient communication networks
Pham, T., Tafur Monroy, I., Jensen, J. B., Chung, I., Erasme, D. & Teixeira, A. L. J.
High-speed Laser with Ultra-low Energy Consumption for Silicon Photonics
Chung, I., Ran, Q., Mørk, J. & Yvind, K.
01/01/2012 → 31/12/2014
Project: Research

NATEC: Nanophotonics for terabit communications : VKR centre of excellence - NATEC
Ukendt
01/09/2008 → 31/08/2014
Project: Research

Hybrid vertical cavity laser
Nielsen, T., Chung, I. & Mørk, J.
Forskningsprojekter - Andre ministerier og styrelser
01/06/2010 → 31/12/2011
Project: Research

Monomode surface emitting lasers
Chung, I.
Forsk. EU - Rammeprogram
01/01/2006 → 01/01/2009
Project: Research

Thermo-electro-optical analysis of subwavelength grating-mirror VCSELs
Chung, I., Mørk, J. & Laurynenka, A.
Forskningsrådene - Andre
01/01/2009 → 31/12/2011
Project: Research

Self-configurable optical links
Forsk. Private danske - Fonde
01/02/2010 → 28/02/2012
Project: Research

Activities:

Ohmic Contacts to n-Type InP for High-Speed Silicon-on-Chip Vertical-Cavity Lasers
Vladimir Topic (Speaker), Sushil Tandukar (Other), Gyeong Cheol Park (Other), Il-Sug Chung (Other)
2 Jul 2018 → 6 Jul 2018
Activity: Talks and presentations › Conference presentations

Ultrahigh-speed hybrid VCSEL for short-distance optical interconnects
Vladimir Topic (Speaker), Gyeong Cheol Park (Other), Sushil Tandukar (Other), Luisa Ottaviano (Other), Il-Sug Chung (Other)
28 Aug 2017 → 1 Sep 2017
Activity: Talks and presentations › Conference presentations

Annual Conference on Commercialization of Micro and Nano Systems
Il-Sug Chung (Participant)
30 Aug 2009 → 4 Sep 2009
Activity: Attending an event › Participating in or organising a conference