Research outputs:

**Inductively coupled plasma dry etching for nano structured III-V on Si lasers**  
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2019 › Research › peer-review

**Ohmic contacts to n-type InP for high-speed silicon-on-chip vertical-cavity lasers**  
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2019 › Research › peer-review

**Silicon-on-chip laser based on bound states in the continuum**  
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2019 › Research › peer-review

**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-eactor 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**  
Reciprocal-Space Engineering of Quasi-Bound States in the Continuum in Photonic Crystal Slabs for High-Q Microcavities

Vertical cavity laser

Hybrid grating reflectors: Origin of ultrabroad stopband

Hybrid III-V on Si grating as a broadband reflector and a high-Q resonator

Hybrid III-V/SOI resonant cavity enhanced 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

Ultracompact resonator with high quality-factor based on a hybrid grating structure
Vertical-Cavity In-plane Heterostructures: Physics and Applications
Research output: Contribution to journal › Journal article – Annual report year: 2015 › Research › peer-review

130-nm tunable grating-mirror VCSEL
Research output: Contribution to journal › Conference article – Annual report year: 2014 › Research › peer-review

Comparison of Different Numerical Methods for Quality Factor Calculation of Nano and Micro Photonic Cavities
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2014 › Research › peer-review

Electrical Injection Schemes for Nanolasers
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

Hybrid grating reflector with high reflectivity and broad bandwidth
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

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: Chapter in Book/Report/Conference proceeding › Article in proceedings – 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 › Article in proceedings – Annual report year: 2013 › 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 – Annual report year: 2012 › Research

VCSELs and silicon light sources exploiting SOI grating mirrors
Research output: Contribution to journal › Journal 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
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 › 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
Research output: Contribution to journal › Journal article – Annual report year: 2006 › Research › peer-review

High Speed(2.5Gbps) reconfigurable inter-chip optical interconnects using opto-VLSI processors
Research output: Contribution to journal › Journal article – Annual report year: 2006 › Research › peer-review

Effect of outermost layers on resonant cavity enhanced devices
Research output: Contribution to journal › Journal article – Annual report year: 2004 › Research › peer-review

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 → 08/05/2019
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 → 12/06/2019
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
Hybrid III-V-on-Si laser with ultralow energy consumption
Forskningsrådsfinansiering
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.
Technical University of Denmark
15/10/2009 → 21/02/2013
Project: PhD

High-speed Laser with Ultralow 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 - 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