Research outputs:

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

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

**Dynamical dispersion engineering in coupled vertical cavities employing a high-contrast grating**
Taghizadeh, A. & Chung, I.-S. 2017 *Scientific Reports*. 7, 7 p., 2123
Research output: Research - peer-review › Journal article – Annual report year: 2017

**Efficient quality-factor estimation of a vertical cavity employing a high-contrast grating**
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2017

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

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

**Reciprocal-Space Engineering of Quasi-Bound States in the Continuum in Photonic Crystal Slabs for High-Q Microcavities**
Chung, I.-S. & Taghizadeh, A. 2017 *Proceedings of the 2017 International Conference on Transparent Optical Networks*. IEEE, 3 p. 8024753
Research output: Research - peer-review › Article in proceedings – Annual report year: 2018

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

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

**Hybrid III-V on Si grating as a broadband reflector and a high-Q resonator**
Research output: Research - peer-review › Article in proceedings – Annual report year: 2016

**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
Park, G. C., Xue, W., Piels, M., Zibar, D., Mørk, J., Semenova, E. & Chung, I-S. 2016 In : Scientific Reports. 6, 38801

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
Taghizadeh, A., Mark, J. & Chung, I-S. 2015

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
Research output: Research - peer-review › Article in proceedings – Annual report year: 2015

Polarization-Independent Wideband High-index-Contrast Grating Mirror
Research output: Research - peer-review › Journal article – Annual report year: 2015

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
Research output: Research - peer-review › Journal article – Annual report year: 2015

Ultracompact resonator with high quality-factor based on a hybrid grating structure
Research output: Research - peer-review › Journal article – Annual report year: 2015

Vertical-Cavity In-plane Heterostructures: Physics and Applications
Research output: Research - peer-review › Journal article – Annual report year: 2015

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

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

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

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

Mode selection laser
Research output: Research › Patent – Annual report year: 2014

Wavelength sweepable laser source
Research output: Research › Patent – Annual report year: 2014

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

Effect of External Optical Feedback for Nano-laser Structures
Electrical injection schemes for nanolasers
Research output: Research › Conference article – Annual report year: 2013

Hybrid III-V-on-Si Vertical Cavity laser for Optical Interconnects
Research output: Research › Conference abstract in proceedings – Annual report year: 2013

Laser device
Research output: Research › Patent – Annual report year: 2014

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

Resonant MEMS tunable VCSEL
Research output: Research › Journal article – Annual report year: 2013

Speed enhancement in VCSELs employing grating mirrors
Research output: Research › Conference article – Annual report year: 2013

Tunable Resonant-Cavity-Enhanced Photodetector with Double High-Index-Contrast Grating Mirrors
Research output: Research › Conference article – Annual report year: 2013

Ultrahigh-speed hybrid laser for silicon photonic integrated chips
Research output: Research › Conference abstract in proceedings – Annual report year: 2014

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

Fabrication activity for nanophotonics
Research output: Research › Paper – Annual report year: 2012

Low-energy-consumption hybrid lasers for silicon photonics
Research output: Research › Conference article – Annual report year: 2012

Reflectivity-modulated grating-mirror
Research output: Research › Patent – Annual report year: 2012
VCSELs and silicon light sources exploiting SOI grating mirrors
Research output: Research - peer-review › Conference article – Annual report year: 2012

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

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

High-index-contrast grating reflector with beam steering ability for the transmitted beam
Carletti, L., Malureanu, R., Mørk, J. & Chung, I-S. 2011 In : Optics Express. 19, 23, p. 23567-23572
Research output: Research - peer-review › Journal article – Annual report year: 2011

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

Hybrid vertical-cavity laser
Chung, I-S. 2011 21 Dec 2011
Research output: Research › Patent – Annual report year: 2011

Modelling of photonic-crystal VCSELs with semi-vectorial and vectorial models
Research output: Research - peer-review › Article in proceedings – Annual report year: 2011

80-nm-tunable high-index-contrast subwavelength grating long-wavelength VCSEL: Proposal and numerical simulations
Research output: Research - peer-review › Conference article – Annual report year: 2010

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

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

Hybrid vertical cavity laser
Research output: Research - peer-review › Article in proceedings – Annual report year: 2010

Hybrid Vertical-Cavity Laser
Chung, I-S. 2010 19 Aug 2010
Research output: Research › Patent – Annual report year: 2010
Monomode surface emitting laser: (Third year activity report)
Chung, I-S. & Mørk, J. 2010
Research output: Research - peer-review › Report – Annual report year: 2010

Numerical methods for modeling photonic-crystal VCSELs
Dems, M., Chung, I-S., Nyakas, P., Bischoff, S. & Panajotov, K. 2010 In : Optics Express. 18, 15, p. 16042-16054
Research output: Research - peer-review › Journal article – Annual report year: 2010

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

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

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

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

Acetone vapor sensing using a vertical cavity surface emitting laser diode coated with polystyrene
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2009

Advanced vectorial simulation of VCSELs with nano structures invited paper
Research output: Research - peer-review › Article in proceedings – Annual report year: 2009

Selectively-pumped grating-mirror long-wavelength VCSEL
Research output: Research - peer-review › Article in proceedings – Annual report year: 2009

The optical chip: high speed and diminutive size
Research output: Communication › Book chapter – Annual report year: 2009

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

Vectorial analysis of dielectric photonic crystal VCSEL
Research output: Research - peer-review › Article in proceedings – Annual report year: 2009
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
</tr>
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<tbody>
<tr>
<td>Electrically pumped nanolaser for terabit communication</td>
<td>Lupi, A., Yvind, K., Chung, I., Oxenløwe, L. K., Birkedal, D. &amp; Roelkens, G.</td>
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<td>Hybrid III-V-on-Si laser with ultralow energy consumption</td>
<td>Taghizadeh, A., Chung, I., Mørk, J., Laurynenka, A., Hammar, M. &amp; Morthier, G. J. I.</td>
</tr>
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<td>MEMS tunable nano-structured photodetector</td>
<td>Learkthanakhachon, S., Chung, I., Tafur Monroy, I., Yvind, K., Gregersen, N., Birkedal, D. &amp; Larsson, A. G.</td>
</tr>
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<td>End-to-end energy efficient communication networks</td>
<td>Pham, T., Tafur Monroy, I., Jensen, J. B., Chung, I., Erasme, D. &amp; Teixeira, A. L. J.</td>
</tr>
<tr>
<td>High-speed Laser with Ultralow Energy Consumption for Silicon Photonics</td>
<td>Chung, I., Ran, Q., Mørk, J. &amp; Yvind, K.</td>
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<tr>
<td>Hybrid vertical cavity laser</td>
<td>Nielsen, T., Chung, I. &amp; Mørk, J.</td>
</tr>
<tr>
<td>Monomode surface emitting lasers</td>
<td>Chung, I.</td>
</tr>
<tr>
<td>Thermo-electro-optical analysis of subwavelength grating-mirror VCSELs</td>
<td>Chung, I., Mørk, J. &amp; Laurynenka, A.</td>
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</tbody>
</table>
**Self-configurable optical links**
Forsk. Private danske - Fonde
01/02/2010 → 28/02/2012

**Activities:**

**Ohmic Contacts to n-Type InP for High-Speed Silicon-on-Chip Vertical-Cavity Lasers**
Topic, V. (Speaker), Tandukar, S. (Other), Park, G. C. (Other), Chung, I. (Other)
2 Jul 2018 → 6 Jul 2018
Activity: Talks and presentations › Conference presentations

**Ultrahigh-speed hybrid VCSEL for short-distance optical interconnects**
Topic, V. (Speaker), Park, G. C. (Other), Tandukar, S. (Other), Ottaviano, L. (Other), Chung, I. (Other)
28 Aug 2017 → 1 Sep 2017
Activity: Talks and presentations › Conference presentations

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