Elizaveta Semenova - DTU Orbit (26/04/2019)
Elizaveta Semenova
Senior Researcher
Department of Photonics Engineering
Nanophotonic Devices
Centre of Excellence for Silicon Photonics for Optical Communications

Postal address:
Ørsteds Plads
345A, 179
2800
Kgs. Lyngby
Denmark
Email: esem@fotonik.dtu.dk
Phone: 45256385
Fax: 4593 6581

Research outputs:

High-confinement gallium nitride-on-sapphire waveguides for integrated nonlinear photonics
Research output: Contribution to journal › Journal article – Annual report year: 2019 › Research › peer-review

High-Quality-Factor AlGaAs-On-Sapphire Microring Resonators
Research output: Contribution to journal › Journal article – Annual report year: 2018 › Research › peer-review

128 × 2 Gb/s WDM PON System with a Single TDM Time Lens Source using an AlGaAs-On-Insulator Waveguide
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2018 › Research › peer-review

A Search for Asymmetric Barrier Layers for 1550 nm Al-Free Diode Lasers
Research output: Contribution to journal › Journal article – Annual report year: 2019 › Research › peer-review

Broadband Light Sources Based On Highly-Nonlinear AlGaAs-On-Insulator Waveguide Devices
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2018 › Research › peer-review

Development of design of 808 nm Al-free laser heterostructures with asymmetric barrier layers
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2018 › Research › peer-review

Feasibility study for Al-free 808 nm lasers with asymmetric barriers suppressing waveguide recombination
Research output: Contribution to journal › Journal article – Annual report year: 2018 › Research › peer-review

Highly Nonlinear Gallium Nitride Waveguides
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2018 › Research › peer-review

High Q AlGaAs-On-Sapphire Microresonators
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2018 › Research › peer-review

Nano-engineered high-confinement AlGaAs waveguide devices for nonlinear photonics
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2018 › Research › peer-review
Signal-to-Idler Conversion Penalty in AlGaAs-on-Insulator Wavelength Converter
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2018 › Research › peer-review

Single-source chip-based frequency comb enabling extreme parallel data transmission
Research output: Contribution to journal › Journal article – Annual report year: 2018 › Research › peer-review

SiNOI and AlGaAs-on-SOI nonlinear circuits for continuum generation in Si photonics
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2018 › Research › peer-review

TKD characterization of low dimensional materials
Research output: Contribution to conference › Conference abstract for conference – Annual report year: 2018 › Research › peer-review

Transmission Kikuchi Diffraction characterization of low dimensional materials
Research output: Contribution to conference › Conference abstract for conference – Annual report year: 2018 › Research › peer-review

Ultra-Efficient and Broadband Nonlinear AlGaAs-on-Insulator Chip for Low-Power Optical Signal Processing
Research output: Contribution to journal › Journal article – Annual report year: 2018 › Research › peer-review

Wavelength tunable MEMS VCSELs for OCT Imaging
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2018 › Research › peer-review

An ultra-efficient nonlinear planar integrated platform for optical signal processing and generation
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2018 › Research › peer-review

A valence force field-Monte Carlo algorithm for quantum dot growth modeling
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2017 › Research › peer-review

Characterization and optimization of a high-efficiency AlGaAs-On-Insulator-based wavelength converter for 64- and 256-QAM signals
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

Demonstration of a self-pulsing photonic crystal Fano laser
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

Enhancing Optical Forces in InP-Based Waveguides
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

Experimental demonstration of a Fano laser based on photonic crystals
Research output: Chapter in Book/Report/Conference proceeding › Conference abstract in proceedings – Annual report year: 2017 › Research › peer-review

Fabrication and experimental demonstration of photonic crystal laser with buried heterostructure
Research output: Chapter in Book/Report/Conference proceeding › Conference abstract in proceedings – Annual report year: 2017 › Research › peer-review
High Q gallium nitride microring resonators
Research output: Chapter in Book/Report/Conference proceeding › Conference abstract 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

Lasers, switches and non-reciprocal elements based on photonic crystal Fano resonances
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2017 › Research › peer-review

Mid-IR optical properties of silicon doped InP
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

On the high characteristic temperature of an InAs/GaAs/InGaAsP QD laser with an emission wavelength of ~1.5 μm on an InP substrate
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

Photonic crystal Fano lasers and Fano switches
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2017 › Research › peer-review

Photonic crystal Fano resonances for realizing optical switches, lasers and non-reciprocal elements
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2017 › Research › peer-review

Specific features of waveguide recombination in laser structures with asymmetric barrier layers
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

Towards Polarization-Independent Four-Wave Mixing in Dispersion Engineered AlGaAs-on-Insulator Nano-Waveguide
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2018 › Research › peer-review

Towards Ultra-High Q Microresonators in High-Index Contrast AlGaAs-On-Insulator
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2017 › Research › peer-review

Высокая характеристическая температура лазера на квантовых точках InAs/GaAs/InGaAsP с длиной волны излучения около 1.5 мкм, синтезированного на подложке InP
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

1.5 μm InAs/InGaAsP/InP quantum dot laser with improved temperature stability
Research output: Contribution to journal › Conference article – Annual report year: 2016 › Research › peer-review

An Ultra-Efficient Nonlinear Platform: AlGaAs-On-Insulator
Research output: Contribution to conference › Conference abstract for conference – Annual report year: 2016 › Research › peer-review

Broadband and Efficient Dual-Pump Four-Wave Mixing in AlGaAs-On-Insulator Nano-Waveguide
Research output: Chapter in Book/Report/Conference proceeding › Conference abstract in proceedings – Annual report year: 2016 › Research › peer-review
Broadband and efficient dual-pump four-wave-mixing in AlGaAs-on-insulator nano-waveguides
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2016 › Research › peer-review

Characterization of a Wavelength Converter for 256-QAM Signals Based on an AlGaAs-On-Insulator Nano-waveguide
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2016 › Research › peer-review

Efficient frequency comb generation in AlGaAs-on-insulator
Research output: Contribution to journal › Journal article – Annual report year: 2016 › Research › peer-review

Highly doped InP as a low loss plasmonic material for mid-IR region
Research output: Contribution to journal › Journal article – Annual report year: 2016 › Research › peer-review

Low-loss high-confinement waveguides and microring resonators in AlGaAs-on-insulator
Research output: Contribution to journal › Journal article – Annual report year: 2016 › Research › peer-review

Nonlinear Optics in AlGaAs on Insulator
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2016 › Research › peer-review

Optically pumped 1550nm wavelength tunable MEMS VCSEL
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2016 › Research › peer-review

Phase-sensitive Four-wave Mixing in AlGaAs-on-Insulator Nano-waveguides
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2016 › Research › peer-review

Silicon doped InP as an alternative plasmonic material for mid-infrared
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2016 › Research › peer-review

Single-Source AlGaAs Frequency Comb Transmitter for 661 Tbit/s Data Transmission in a 30-core Fiber
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2016 › Research › peer-review

Supercontinuum Generation in AlGaAs-On-Insulator Nano-Waveguide at Telecom Wavelengths
Research output: Chapter in Book/Report/Conference proceeding › Conference abstract in proceedings – Annual report year: 2016 › Research › peer-review

Surface Plasmons on Highly Doped InP
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2016 › Research › peer-review

Threshold Characteristics of Slow-Light Photonic Crystal Lasers
Research output: Contribution to journal › Journal article – Annual report year: 2016 › Research › peer-review

Ultrahigh-speed Si-integrated on-chip laser with tailored dynamic characteristics
Research output: Contribution to journal › Journal article – Annual report year: 2016 › Research › peer-review
A Highly Efficient Nonlinear Platform: AlGaAs-On-Insulator
Research output: Chapter in Book/Report/Conference proceeding › Conference abstract in proceedings – Annual report year: 2015 › Research › peer-review

AlGaAs-On-Insulator Nanowire with 750 nm FWM Bandwidth, -9 dB CW Conversion Efficiency, and Ultrafast Operation Enabling Record Tbaud Wavelength Conversion
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2015 › Research › peer-review

AlGaAs-On-Insulator nonlinear photonics
Research output: Contribution to conference › Conference abstract for conference – Annual report year: 2015 › Research › peer-review

Diode lasers with asymmetric barriers for 850 nm spectral range: experimental studies of power characteristics
Research output: Contribution to journal › Journal article – Annual report year: 2015 › Research › peer-review

Highly Efficient Four-Wave Mixing in an AlGaAs-On-Insulator (AlGaAsOI) Nano-Waveguide
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2015 › Research › peer-review

Highly Sensitive Photonic Crystal Cavity Laser Noise Measurements using Bayesian Filtering
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2015 › Research › peer-review

Hybrid III-V/SOI single-mode vertical-cavity laser with in-plane emission into a silicon waveguide
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2015 › Research › peer-review

Hybrid vertical-cavity laser with lateral emission into a silicon waveguide
Research output: Contribution to journal › Journal article – Annual report year: 2015 › Research › peer-review

III-V/SOI vertical cavity laser structure for 120 Gbit/s speed
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2015 › Research › peer-review

III-V/SOI vertical cavity laser with in-plane output into a Si waveguide
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2015 › Research › peer-review

Improvement of power characteristics in 850 nm quantum well laser with asymmetric barriers
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2015 › Research › peer-review

On the optimization of asymmetric barrier layers in InAlGaAs/AlGaAs laser heterostructures on GaAs substrates
Research output: Contribution to journal › Journal article – Annual report year: 2015 › Research › peer-review

Overcoming doping limits in MOVPE grown n-doped InP for plasmonic applications
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2015 › Research › peer-review

Slow-light effects in photonic crystal membrane lasers
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2015 › Research › peer-review
Suppression of sublinearity of light-current curve in 850 nm quantum well laser with asymmetric barrier layers
Research output: Contribution to journal › Journal article – Annual report year: 2015 › Research › peer-review

The effect of asymmetric barrier layers in the waveguide region on power characteristics of QW lasers
Research output: Contribution to journal › Journal article – Annual report year: 2015 › Research › peer-review

Thermal analysis of line-defect photonic crystal lasers
Research output: Contribution to journal › Journal article – Annual report year: 2015 › Research › peer-review

Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2015 › Research › peer-review

Butt-joint integration of active optical components based on InP/AlInGaAsP alloys
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

Crystallographic dependent in-situ CBr4 selective nano-area etching and local regrowth of InP/InGaAs by MOVPE
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

Epitaxial growth of quantum dots on InP for device applications operating at the 1.55 μm wavelength range
Research output: Contribution to journal › Conference article – Annual report year: 2014 › Research › peer-review

High-quality MOVPE butt-joint integration of InP/AlGaInAs/InGaAsP-based all-active optical components
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

Improvement of light-current characteristic linearity in a quantum well laser with asymmetric barriers
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2014 › Research › peer-review

Nonplanar nanoselective area growth of InGaAs/InP
Research output: Contribution to journal › Conference article – Annual report year: 2014 › Research › peer-review

Slow-light-enhanced gain in active photonic crystal waveguides
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

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

Crystallographic dependence of the lateral undercut wet etch rate of AlInGaAsP in diluted HCl for III-V sacrificial release
Research output: Contribution to journal › Journal 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: 2014 › Research › peer-review

Resonant MEMS tunable VCSEL
Research output: Contribution to journal › Journal 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
41 GHz and 10.6 GHz low threshold and low noise InAs/InP quantum dash two-section mode-locked lasers in L band
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review

Effect of Asymmetric Barrier Layers in the Waveguide Region on the Temperature Characteristics of QuantumWell Lasers
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review

Enhanced Gain in Photonic Crystal Amplifiers
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2012 › Research › peer-review

High-speed photodetectors in a photonic crystal platform
Research output: Chapter in Book/Report/Conference proceeding › Conference abstract in proceedings – Annual report year: 2012 › Research › peer-review

Improvement of temperature-stability in a quantum well laser with asymmetric barrier layers
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review

Individual optimization of InAlGaAsP-InP sections for 1.55-μm passively mode-locked lasers
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2012 › Research › peer-review

Nano-selective area growth of InGaAs/InP using CBr4 insitu etching
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2012 › Research › peer-review

Slow-light enhancement of spontaneous emission in active photonic crystal waveguides
Research output: Contribution to journal › Conference article – Annual report year: 2012 › Research › peer-review

Active III-V Semiconductor Photonic Crystal Waveguides
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2011 › Research › peer-review

Enhanced Gain in Slow-Light Photonic Crystal Waveguides with Embedded Quantum Dots
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2011 › Research › peer-review

InAs/InGaAsP Quantum Dots Emitting at 1.5 μm for Applications in Lasers
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2011 › Research › peer-review

Investigating the chemical and morphological evolution of GaAs capped InAs/InP quantum dots emitting at 1.5μm using aberration-corrected scanning transmission electron microscopy
Research output: Contribution to journal › Journal article – Annual report year: 2011 › Research › peer-review

Metal organic vapor-phase epitaxy of InAs/InGaAsP quantum dots for laser applications at 1.5 μm
Research output: Contribution to journal › Journal article – Annual report year: 2011 › Research › peer-review

Quantitative strain mapping of InAs/InP quantum dots with 1 nm spatial resolution using dark field electron holography
Research output: Contribution to journal › Journal article – Annual report year: 2011 › Research › peer-review

Towards quantitative three-dimensional characterisation of buried InAs quantum dots
Research output: Contribution to journal › Conference article – Annual report year: 2011 › Research › peer-review
Towards quantitative three-dimensional characterisation of InAs quantum dots
Research output: Chapter in Book/Report/Conference proceeding › Conference abstract in proceedings – Annual report year: 2011 › Research › peer-review

10-GHz 1.59-µm quantum dash passively mode-locked two-section lasers
Research output: Contribution to journal › Conference article – Annual report year: 2011 › Research › peer-review

Lambda shifted photonic crystal cavity laser
Research output: Contribution to journal › Journal article – Annual report year: 2010 › Research › peer-review

Quarter-lambda-shifted photonic crystal lasers
Research output: Contribution to conference › Poster – Annual report year: 2010 › Research › peer-review

Projects:

III-V Nanowire Selective Area MOVPE Growth for High Efficiency Solar Cell
Project: PhD

Tailored nanoscale optical materials and devices
Project: PhD

Developing of Superior Quantum Dot Gain Material for 1.5-1.6 um Wavelenght Range
Project: PhD

Developing of III-V epitaxy of highly efficient quantum dot gain material to the silicon platform
Project: PhD

Block Copolymer Precursors for Chemical Nanopatterning of Graphene
Project: PhD

Design and fabrication of mid-Infrared plasmonic materials based on highly doped III-V semiconductors
Project: PhD

Femtosecond semiconductor lasers
Project: PhD

Nanoscale semiconductor optical devices
Project: PhD

Vertical-cavity laser with a novel grating mirror
Project: PhD

QUantum dot Energy level Engineering for laser applications on InP and Si platforms
Project: Research

Governing the speed of light
Project: Research

QDLaser : Development of novel quantum dot based materials for compact laser devices for potential
Project: Research
Femtosecond semiconductor LASers Harnessed
Project: Research

Activities:

Selective Area Growth of GaAs Nanowires on Silicon for photovoltaic applications
Activity: Talks and presentations › Conference presentations

Epitaxy of Quantum Dots operating in the 1.55 μm wavelength range for device applications
Activity: Talks and presentations › Conference presentations

International Conference on Metamaterials and Nanophotonics
Activity: Attending an event › Participating in or organising a conference

Epitaxial growth of GaAs Nanowires on Silicon substrate for photovoltaic applications
Activity: Talks and presentations › Conference presentations

Epitaxial methods of quantum dot growth for 1550 nm operating wavelength
Activity: Talks and presentations › Conference presentations

Monolithic integration of immersed InP on Si
Activity: Talks and presentations › Conference presentations

Tunable MEMS VCSEL on silicon substrate
Activity: Talks and presentations › Conference presentations

Presentation title: "A valence force field-Monte Carlo algorithm for quantum dot growth modeling".
Activity: Talks and presentations › Conference presentations