Elizaveta Semenova - DTU Orbit (10/02/2019)

Semenova, Elizaveta
esem@fotonik.dtu.dk

Department of Photonics Engineering - Senior Researcher

Nanophotonic Devices

Centre of Excellence for Silicon Photonics for Optical Communications

Research outputs:

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

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

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

**Broadband Light Sources Based On Highly-Nonlinear AlGaAs-On-Insulator Waveguide Devices**
Research output: Research - peer-review › Article in proceedings – Annual report year: 2018

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

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

**Highly Nonlinear Gallium Nitride Waveguides**
Research output: Research - peer-review › Article in proceedings – Annual report year: 2018

**High Q AlGaAs-On-Sapphire Microresonators**
Research output: Research - peer-review › Article in proceedings – Annual report year: 2018

**Nano-engineered high-confinement AlGaAs waveguide devices for nonlinear photonics**
Research output: Research - peer-review › Article in proceedings – Annual report year: 2018
A Highly Efficient Nonlinear Platform: AlGaAs-On-Insulator
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2015

AlGaAs-On-Insulator Nanowire with 750 nm FWM Bandwidth, -9 dB CW Conversion Efficiency, and Ultrafast Operation Enabling Record Tbaud Wavelength Conversion
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2015

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

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

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

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

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

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

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

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

Improvement of power characteristics in 850 nm quantum well laser with asymmetric barriers
Research output: Research - peer-review › Article in proceedings – Annual report year: 2015
High-speed photodetectors in a photonic crystal platform

Improvement of temperature-stability in a quantum well laser with asymmetric barrier layers

Individual optimization of InAlGaAsP-InP sections for 1.55-μm passively mode-locked lasers

Nano-selective area growth of InGaAs/InP using CBr4 insitu etching

Slow-light enhancement of spontaneous emission in active photonic crystal waveguides

Active III-V Semiconductor Photonic Crystal Waveguides

Enhanced Gain in Slow-Light Photonic Crystal Waveguides with Embedded Quantum Dots

InAs/InGaAsP Quantum Dots Emitting at 1.5 μm for Applications in Lasers

Investigating the chemical and morphological evolution of GaAs capped InAs/InP quantum dots emitting at 1.5μm using aberration-corrected scanning transmission electron microscopy

Metal organic vapor-phase epitaxy of InAs/InGaAsP quantum dots for laser applications at 1.5 μm
Quantitative strain mapping of InAs/InP quantum dots with 1 nm spatial resolution using dark field electron holography
Research output: Research - peer-review › Journal article – Annual report year: 2011

Towards quantitative three-dimensional characterisation of buried InAs quantum dots
Research output: Research - peer-review › Conference article – Annual report year: 2011

Towards quantitative three-dimensional characterisation of InAs quantum dots
Research output: Research - peer-review › Conference abstract in proceedings – Annual report year: 2011

10-GHz 1.59-μm quantum dash passively mode-locked two-section lasers
Dontabactouny, M., Rosenberg, C., Semenova, E., Larsson, D., Yvind, K., Piron, R., Grillot, F., Dehaese, O., Chevalier, N. & Loualiche, S. 2010 In : Proceedings of SPIE—the international society for optical engineering. 7720, p. 77201A
Research output: Research - peer-review › Conference article – Annual report year: 2011

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

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

Projects:

III-V Nanowire Selective Area MOVPE Growth for High Efficiency Solar Cell
Lebedkina, E., Semenova, E. & Canulescu, S.
Institut stipendie (DTU)
01/01/2018 → 31/12/2020
Project: PhD

Tailored nanoscale optical materials and devices
Sakanas, A., Yvind, K., Mørk, J. & Semenova, E.
Samfinansierede - Virksomhed
01/08/2015 → 31/01/2019
Project: PhD

Developing of Superior Quantum Dot Gain Material for 1.5-1.6 um Wavelenght Range
Eksternt finansieret virksomhed
15/03/2015 → 15/06/2018
Project: PhD

Developing of III-V epitaxy of highly efficient quantum dot gain material to the silicon platform
Viazmitinov, D., Semenova, E., Frandsen, L. H. & Yvind, K.
Eksternt finansieret virksomhed
01/10/2014 → 30/06/2018
Project: PhD
Block Copolymer Precursors for Chemical Nanopatterning of Graphene
Wang, Z., Ndoni, S., Almdal, K., Semenova, E., Jannasch, P. & Posselt, D.
Samfinansieret - Andet
15/07/2014 → 07/12/2017
Project: PhD

Design and fabrication of mid-infrared plasmonic materials based on highly doped III-V semiconductors
Panah, M. E. A., Laurynenka, A., Semenova, E., Yvind, K., Bordo, V. G., Engheta, N., Bordo, V. G. & Engheta, N.
Institut stipendie (DTU)
15/02/2014 → 23/08/2017
Project: PhD

Femtosecond semiconductor lasers
Institut/centerfinansieret
01/08/2010 → 24/09/2014
Project: PhD

Nanoscale semiconductor optical devices
Kuznetsova, N., Yvind, K., Semenova, E., Malureanu, R., Cirilin, G., Kardynal, B. & Cirilin, G.
Institut/centerfinansieret
01/09/2010 → 18/06/2015
Project: PhD

Vertical-cavity laser with a novel grating mirror
Park, G. C., Chung, I., Semenova, E., Frandsen, L. H., Heck, M., Kapon, E. & Kapon, E.
Institut stipendie (DTU) Samf.
15/02/2013 → 15/06/2016
Project: PhD

QUEENs: QUantum dot Energy level Engineering for laser applicatioNs on InP and Si platforms
01/06/2013 → 31/08/2017
Project: Research

GOSPEL: Governing the speed of light
Mørk, J., Gregersen, N., Yvind, K., Kristensen, P. T., Hansen, P. L., Semenova, E., Xue, W., Pu, M. & Larsson, D.
Forsk. EU - Rammeprogram
01/09/2008 → 31/12/2011
Project: Research

QDLaser : Development of novel quantum dot based materials for compact laser devices for potential
Mørk, J. & Semenova, E.
Forsk. EU - Andre EU-midler
01/01/2011 → 31/12/2012
Project: Research

FLASH: Femtosecond semiconductor LASers Harnessed
Yvind, K., Kim, J. M., Semenova, E., Mørk, J., Hvam, J. M. & Penty, R.
Forskningsrådene - Andre
01/09/2009 → 31/10/2012
Project: Research

Activities:
Selective Area Growth of GaAs Nanowires on Silicon for photovoltaic applications
Lebedkina, E. (Speaker), Viazmitinov, D. (Other), Canulescu, S. (Other), Semenova, E. (Other)
24 Sep 2018 → 27 Sep 2018
Activity: Talks and presentations › Conference presentations

Epitaxy of Quantum Dots operating in the 1.55 µm wavelength range for device applications
Semenova, E. (Invited speaker)
17 Sep 2018 → 21 Sep 2018
Activity: Talks and presentations › Conference presentations

International Conference on Metamaterials and Nanophotonics
Semenova, E. (Participant)
17 Sep 2018 → 21 Sep 2018
Activity: Attending an event › Participating in or organising a conference

Epitaxial growth of GaAs Nanowires on Silicon substrate for photovoltaic applications
Lebedkina, E. (Speaker), Viazmitinov, D. (Other), Canulescu, S. (Other), Semenova, E. (Other)
12 Sep 2018 → 14 Sep 2018
Activity: Talks and presentations › Conference presentations

Epitaxial methods of quantum dot growth for 1550 nm operating wavelength
Lebedkina, E. (Speaker), Shikin, A. (Other), Kadkhodazadeh, S. (Other), Ndoni, S. (Other), Almdal, K. (Other), Lior Asor (Other), Uri Banin (Other), Czcibor Ciostek (Other), Marcin Syperek (Other), Kresten Yvind (Lecturer), Semenova, E. (Other)
3 Jun 2018 → 8 Jun 2018
Activity: Talks and presentations › Conference presentations

Monolithic integration of immersed InP on Si
Viazmitinov, D. (Speaker), Frandsen, L. H. (Other), Yvind, K. (Other), Semenova, E. (Other)
3 Jun 2018 → 8 Jun 2018
Activity: Talks and presentations › Conference presentations

Tunable MEMS VCSEL on silicon substrate
Sahoo, H. K. (Speaker), Thor Ansbæk (Speaker), Ottaviano, L. (Speaker), Semenova, E. (Speaker), Fedor I. Zubov (Guest lecturer), Ole Hansen (Speaker), Yvind, K. (Speaker)
12 Apr 2018 → 13 Apr 2018
Activity: Talks and presentations › Conference presentations

Presentation title: “A valence force field-Monte Carlo algorithm for quantum dot growth modeling”.
Kadkhodazadeh, S. (Other), Semenova, E. (Other), Willatzen, M. (Other), Alessandro Pecchia (Other), Matthias Auf de Maur (Other), Daniele Baretin (Speaker)
24 Jul 2017 → 28 Jul 2017
Activity: Talks and presentations › Conference presentations