
Education

- 2017–present **PhD in Photonics**, *Institute of Bioengineering, School of Engineering, École polytechnique fédérale de Lausanne, Switzerland.*
Supervisor Prof. Sylvie Roke
- 2015–2017 **M. Sc. in Applied Mathematics and Physics**, *Nanooptics and spectroscopy, Moscow Institute of Physics and Technology, Russia.*
Supervisor Prof. Dr. Andrei Naumov
- 2012–2015 **B. Sc. in Applied Mathematics and Physics**, *Nanooptics and spectroscopy, Moscow Institute of Physics and Technology, Russia.*
Supervisor Prof. Dr. Oleg Kompanets

Master thesis

- Title *3D fluorescent nanoscopy via spatial phase modulation*
- Supervisor Prof. Dr. Andrei Naumov
- Description The work concerns the feasibility of 3D optical diagnostic of porous media with subdiffraction spatial resolution via epi-luminescence microscopy of single semiconductor colloid nanocrystals (quantum dots) CdSe/ZnS used as emitting labels/nanoprobes. The nanoprecise reconstruction of axial coordinate is provided by DH-PSF transformation.

Bachelor thesis

- Title *Research and development of the compact portable dichrometer using biosensors based on DNA*
- Supervisor Prof. Dr. Oleg Kompanets
- Description In the thesis a new version of compact dichrometer is proposed. Like in a previous version, adding biologically active substances to liquid-crystalline DNA dispersion leads to abnormal changes of circular dichroism signal, proportional to the concentration of BAS. That allowed to create a fast dichrometer specialized for work with a DNA-biosensor. Unlike the previous versions of dichrometers, the last one uses only three wavelength and original optical scheme, that allowed to make it more compact and add Biosensor testing mode.

Employment

- 2017–present **Laboratory for Fundamental BioPhotonics**, *École polytechnique fédérale de Lausanne, Switzerland.*
- 2015–2017 **Andrei Naumov research group Single Molecule Spectromicroscopy**, *Institute for Spectroscopy RAS, Troitsk, Moscow.*
- 2014–2015 **Laser spectral instrumentation department**, *Institute for Spectroscopy RAS, Troitsk, Moscow.*

Publications

- 2018 **“Fluorescence imaging for ultrafiltration of individual nanoparticles from a colloidal solution in track membranes”**, *S.I. Kulik, I.Yu. Eremchev et al.*, Journal of Applied Spectroscopy Vol. 85, Issue 5, pp 916-922.
- 2017 **“3D imaging of semiconductor colloid nanocrystals: on the way to nanodiagnostics of track membranes”**, *S.I. Kulyk, I.Y. Eremchev et al.*, EPJ Web Conf. Vol. 132.

Conferences

- Sep 2019 **Swiss Chemical Society Fall Meeting**, Zurich.
- Jul 2019 **CECAM workshop "Dynamics of water in complex environments, bridging the gap between molecular and mesoscopic interfaces"**, *ENS*, Paris.
- Dec 2018 **Photonics Day 2018**, *EPFL*, Lausanne.
- Nov 2016 **All-Russian Youth Samara Conference-Contest of Scientific Works on Optics and Laser Physics**, *Lebedev Physical Institute*, Samara, 3rd prize.
- Oct 2016 **International Youth Scientific School “Coherent Optics and Optical Spectroscopy”**, Kazan, 1st prize.
- Oct 2016 **XXV Congress on Spectroscopy**, *Institute for Spectroscopy*, Troitsk, Moscow.
- Nov 2015 **Skoltech Conference on Research for Impact**, *Skoltech*, Moscow, 1st jury prize.
- Oct 2015 **International Youth Scientific School “Coherent Optics and Optical Spectroscopy”**, Kazan.

Skills

- Languages English (upper-intermediate, *TOEFL ITP 617/677 July 2015*)
French, German (pre-intermediate), Spanish (beginner)
Ukrainian (native), Russian (bilingual)
- Experiment SFG, SFS, SHS, OPA, DH-PSF, AFM (basic)
Confocal fluorescence microscopy
Low-temperature measurements (helium, basic)
- Computer LabView, Python, \LaTeX , Matlab, Pascal, Igor Pro
Tensorflow (Deep learning for optical imaging course)
3D printing (PRUSA) and modeling (Solidworks, Rhino)

Awards

- 2016 **3rd prize**, “*For interesting report*”, All-Russian Youth Samara Conference-Contest of Scientific Works on Optics and Laser Physics, Samara.
- 2016 **1st prize**, “*For the best report*”, International Youth Scientific School “Coherent Optics and Optical Spectroscopy”, Kazan.
- 2015 **1st jury prize**, “*Industry application*”, Skoltech Conference on Research for Impact, Skoltech, Moscow.

Extracurricular activities & Interests

- 2013–2019 Co-organiser, teacher and responsible for division of physics and mathematics in a summer science school for high-school students (*Summer science school «Orientir»*)
- Hobbies Snowboarding, foreign languages