

Conference: Nanobiophotonics XVI

Chair

Nikolai G. Khlebtsov,

Institute of Biochemistry and Physiology of Plants and Microorganisms, RAS,
Saratov State University (Russia)

Secretary

Timofey E. Pylaev,

Institute of Biochemistry and Physiology of Plants and Microorganisms,
RAS(Russia)

Program Committee

Roberto Pini, Institute of Applied Physics (IFAC-CNR)
National Research Council of Italy;

Jian Ye, School of Biomedical Engineering & Med-X Research Institute
Shanghai Jiao Tong University, China

Dmitry Gorin, Scoltech, Saratov State University (Russia)

Irina Goryacheva, Saratov State University (Russia)

Lev Dykman, Institute of Biochemistry and Physiology of Plants and
Microorganisms, RAS, Saratov (Russia)

Alexey Yashchenok, Scoltech, Russia

Vitaly Khanadeev, Institute of Biochemistry and Physiology of Plants and
Microorganisms, RAS, Saratov State University (Russia)

Boris Khlebtsov, Institute of Biochemistry and Physiology of Plants and
Microorganisms, RAS, Saratov (Russia)

The main goal of the Conference is to present and discuss recent developments and applications of plasmonic nanostructures with controlled geometrical, optical, and surface chemical properties, as well as multifunctional nanocomposites conjugated to various molecular ligands. These topics are the subject of intensive studies and applications in biology and medicine. To date, this field has included genomics and biosensorics, immunoassays and clinical chemistry, phototherapy of cancer cells and tumors, targeted delivery of drugs and antigens, and optical bioimaging of cells and tissues with state-of-the-art nanophotonic detection systems. Multifunctional nanocomposites that combine therapeutic, diagnostic, and sensing modalities in a single nanostructure are widely used in a new field of nanobiotechnology called theranostics. Although the term theranostics has been employed for the first time quite recently, it is now rapidly growing and promising field at the crossroads of plasmonics and nanomedicine.

Topics:

- Fabrication of plasmon-resonant NPs and nanostructures
- Multifunctional nanostructures for theranostics
- Composite nanostructured functional materials
- Optical properties of plasmon resonant NPs and nanostructures
- Physicochemical characterization of NPs and nanostructures
- Functionalization of NPs with biospecific macromolecules
- Nanoscale biosensors
- Chemical technologies based on NPs
- Cell imaging with NP bioconjugates
- Photothermal and photodynamic therapy using nanocomposites
- Application of NPs to the targeted drug delivery
- Uptake of NPs by cells
- Biodistribution and toxicity of NPs *in vitro* and *in vivo*
- Analytical applications of NPs and bioconjugates
- SERS with plasmonic nanostructures
- SERS tags as novel nanoprobe
- Quantum dots and its application