Foreword to the materials of „Smart Nanosystems for Life“ international school-conference held at ITMO university, St. Petersburg, Russia, December 10–13, 2019

This section of the Optics and Spectroscopy issue is dedicated to the 2nd international school-conference for young researchers „Smart Nanosystems for Life“ (SNL), which was held in December 2019 in St. Petersburg, Russia. The conference was organized by the members of International laboratory „Hybrid nanostructures for biomedicine“ of the International Research and Education Center for Physics of Nanostructures at ITMO University. The SNL-2019 conference was aimed to be the place where young researchers and students from Russian and foreign universities could present their recent results in the cutting-edge fields of Physics, Material Science, and Engineering of nanostructured materials, attend lectures delivered by experts in these fields, and acquire new experiences at the master classes on confocal fluorescence microscopy, time-resolved photoluminescence microscopy, and dynamic light scattering.

We would like to present a brief collection of papers authored by the participants of the school-conference, describing photophysical, optical and photochemical properties of nanostructure-based systems, which can be efficiently used in photovoltaics, optoelectronics and biomedicine. We also present a paper on the theory of hologram formation in a polymerizing medium doped with nanoparticles, and another one on spatial confinement of microobjects in the radiofrequency ion trap.

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