– creation and development of unique technology of 3D hyperspectral microscope with ultimate spatial resolution, based on a computer reconstruction of the structure of a sample by location of single-point emitters probes with the registration of their zero-phonon spectral lines; study of photophysical properties of single quantum emitters of different nature and their ensembles; development of combined nanodiagnostics of solid media and structures using methods of optical nanoscopy and atomic force microscopy;

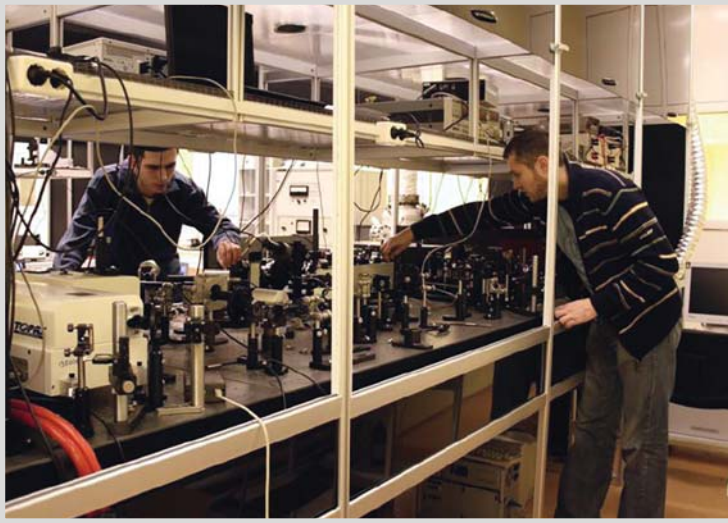
– study of ultrafast processes in matter with ultimate spatial and temporal resolution based on a combination of femtosecond electron diffraction and optical spectroscopy;

– study of physical and technical aspects of creating a source of extreme ultraviolet radiation for nanolithography devices with topological size of the elements less than 7 nm for the new generation of nanoelectronics.

The Institute of Spectroscopy is well-recognized internationally. It is consistently ranked in Russia, according to the foreign sources (SCImago Institutions Rankings), among 20 top research institutes with the highest index of citations and is ranked among top three Russian institutes of Physics profile (www.expertcorps.ru).

The ISAN is 'a center of crystallization' of Russian professionals who specialize in photonics, spectroscopy, spectral analysis and optical spectral instrumentation. It is a key organizer of congresses of spectroscopy with participation of foreign scientists and experts, as well as of many scientific conferences and schools on optical spectroscopy and a co-organizer of the conferences on medical physics.

The Institute also has close contacts with small and medium-sized businesses who are interested in commercialization of the R&D results produced at the ISAN labs. These companies started to produce extreme ultraviolet light source at 13.5 nm for new generation of nanolithography machines, instruments of spectral analysis for metallurgy, geology, medicine, biosensors for the determination of biologically active and toxic compounds in biological fluids, milk and fatty acids analyzers in food and other devices.



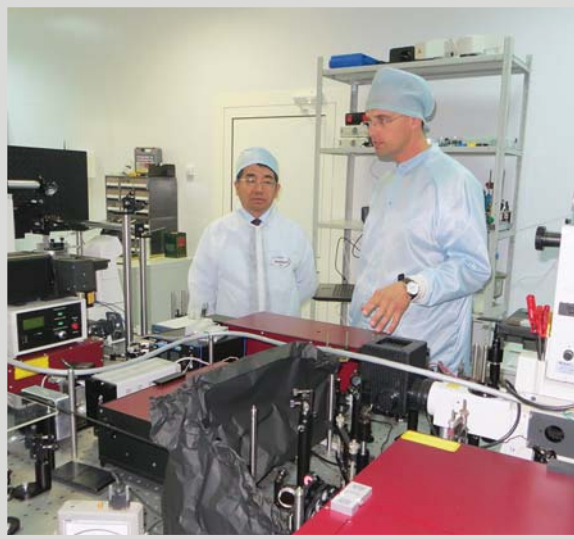
Лаборатория спектроскопии ультрабыстрых процессов (к. ф.-м. н. А. Мельников, к. ф.-м. н. В. Компанец)

Laboratory of spectroscopy of ultrafast processes (Dr. Al. Mel'nikov, Dr. V. Kompanets)

The staff of the Institute consists of about 200 people, half of them are researchers, including 25 Doctors of Science and 50 Candidates of Science.

Лаборатория Фурье-спектроскопии (к. ф.-м. н. К. Болдырев, проф. М. Попова, аспиранты Д. Ерофеев, Е. Добрецова, А. Молчанова, М. Кащенко, к. ф.-м. н. С.Климин, к. ф.-м. н. Е. Чукалина)

Laboratory of Fourier spectroscopy (Dr. K. Boldyrev, Prof. M. Popova, PhD. students D. Erofeev, E. Dobretsova, M. Kaschenko, A. Molchanova, Dr. S. Klimin, Dr. E. Chukalina)



Профессор Хуанг Вэй (Китай) и к. ф.-м. н. П. Мелентьев в лаборатории лазерной спектроскопии

Prof. Dr. Huang Wei (Nanjing Tech University, China) and Dr. P. Melentiev in the laboratory of laser spectroscopy