New ICFOnians

New researchers have joined ICFO.

August 17, 2009

One visiting scientist, Dr. Valery Lobanov.; two postdoctoral researchers, Dr. Jonathan Palero and Dr. Augusto Roncaglia; three PhD students, Ms. Kavita Devi, Ms. Olga Borovkova and Ms. Belen Sainz; and two students, Mr. Yannick Lefevre and Ms. Alba Alfonso Garcia, have joined ICFO.

Dr. Valery Lobanov is a visiting scientist who joins the group led by Prof. Lluis Torner to conduct projects on the formation and control of optical solitons. He will team up with Dr. Yaroslav Kartashov to put forward new strategies to generate and manipulate solitons in nonlinear materials.

Dr. Jonathan Palero finished his PhD in Molecular Biophysics at the Utrecht University, the Netherlands, and now joins the group led by Pablo Loza. During his PhD studies, he worked on the nonlinear spectral imaging microscopy system, especially focusing on the non-invasive optical biopsy capability of nonlinear spectral imaging. Dr. Palero will join ICFO under the STELUM project (FP7 Marie Curie-IAPP Scheme) as a postdoc with the task of applying the new adaptive optics and pulse shaping techniques developed in the project to thick living tissues.

Dr. Augusto Roncaglia will be working along two main lines in the group led by Prof. Antonio Acin. First, he will analyze the dynamics of correlations, such as multipartite entanglement during the process of decoherence. This also includes the study of recent models for quantum computation, based on dissipation and the distribution of entanglement in noisy environments. Second, he will analyze the thermodynamical properties of quantum many-body systems at low temperature, where the quantum features become evident.

Ms. Kavita Devi will be involved as a PhD student in the development of continuous-wave optical parametric oscillators for the mid-infrared spectral range and their deployment in spectroscopic applications, in the group led by Prof. Majid Ebrahim-Zadeh. The investigation?s main emphasis will be the generation of high-power and single-frequency radiation in the 3-5 micron spectral range and its use in single-pass absorption measurements followed by photoacoustic spectroscopy.

The formation and control of optical solitons will be the subject of the research performed by Ms. Olga Borovkova. She joins the group led by Prof. Lluis Torner as a PhD student. She will team up with Dr. Yaroslav Kartashov with the objective of developing new approaches to the generation and manipulation of solitons in nonlinear materials.

Ms. Belen Sainz will be studying the quantum information properties of general many-body systems as a PhD student in the group led by Prof. Antonio Acin. Her research work will also cover the distribution of quantum information resources through quantum networks, which define some concrete examples of many-particle quantum systems. Special emphasis will be

given to the distribution of entanglement and secret keys for cryptographic applications.

Mr. Yannick Lefevre is a student from Belgium who will be working in the European Space Agency funded Quantum Transceiver project, within the group led by Prof. Valerio Pruneri. He will develop general instrumentation interfaces for quantum cryptography measurements.

Ms. Alba Alfonso Garcia holds a degree in Physics from the Universitat de Barcelona. She was an ICFO - Caixa Catalunya Summer Fellow in 2008, when she collaborated with the Biophotonics group led by Prof. Pablo Loza. During the summer of 2009 she will be collaborating again with the same research group, continuing her work on the project entitled "Polarization Second Harmonic (PSHG) imaging of biological samples". In particular, she will be analyzing PSHG data to achieve discrimination between healthy and diseased muscular tissue. She will begin a Master?s (M.Sc.) in Optics and Photonics at the Universitat Karlsruhe (TH) (Karlsruhe, Germany) in October.

Dr. Jonathan Palero and Dr. Augusto Roncaglia

Ms. Kavita Devi, Ms. Olga Borovkova and Ms. Belen Sainz

Mr. Yannick Lefevre and Ms. Alba Alfonso Garcia