

Young Researchers Career Development Workshop:

bridging a gap between education & career in electromagnetics and photonics

Dates & Venue: Monday, June 26, 2006, Kharkiv National University

in the frame of Electromagnetics and Photonics Week

Organized by:

V.N. Karazin Kharkiv National University OSA Student Chapter
Institute of Radiophysics and Electronics Young Scientists Council

In cooperation with:

IRE IEEE Student Chapter Branch (Kharkiv, Ukraine)
IEEE/LEOS Student Branch Chapter (Kharkiv, Ukraine)
Taras Shevchenko Natl Univ Kyiv OSA&SPIE Student Chapters (Kyiv, Ukraine)
Taurida Natl V. Vernadsky Univ OSA&SPIE Student Chapters (Simferopol, Ukraine)
Norfolk State University OSA Student Chapter (Norfolk, Virginia, USA)
Australian National University OSA Student Chapter (Canberra, Australia)



Sponsored by:

V. Karazin Kharkiv National University OSA Student Chapter
Abdus Salam International Centre for Theoretical Physics
The International Society for Optical Engineering



YSCD Workshop Technical Program

07:00-14:00 Workshop and ICTP Prize Contest registration

13:00-14:00 Working lunch // Roundtable discussions of participating Student Chapters

14:00 Session I: Tutorials

14:00-14:30 Advances and challenges in metamaterials research

Sergei A. Tretyakov (HUT, Helsinki, Finland)

Metamaterials are artificial electromagnetic (multi-)functional materials engineered to satisfy the prescribed requirements, which have properties that transcend the laws of nature. These properties emerge due to specific interactions with electromagnetic fields or due to external electrical control. Electromagnetic metamaterials will play a key role in providing new functionalities to the future electronic devices and components, such as high-speed circuits, multifunctional smart miniature antennas and apertures, high-resolution imaging systems, smart skins, etc.

14:30-15:00 Linear and nonlinear optics of photonic materials (OSA Traveling Lecturer Seminar)

Vladimir Gavrilenko (NSU, Norfolk, Virginia, USA)

Even-order non-linear optical spectroscopy has emerged as an unusually sensitive technique for noninvasive analysis of surfaces and buried interfaces of centrosymmetric materials. The forefront challenges are: to develop reliable microscopic computational methods for calculating and interpreting measured surface non-linear spectra; to relate non-linear surface spectra quantitatively to linear optical surface probes; and to develop convenient methods for acquiring nonlinear optical spectra over bandwidths that encompass multiple electronic surface resonances. The recent advances in both calculation and measurement of linear and non-linear optical spectra, with emphasis on the solid surfaces, as well as metallic nanoparticles covered with organic and inorganic molecules are reviewed.

15:00-15:40 Movies: "Optical catastrophes" and "Vortices in nature and technology"

(Taurida National V. Vernadsky Univ., Simferopol, Ukraine)

15:40 Coffee break // presentations of OSA/SPIE/IEEE Student Chapters

16:30 Session II: Career development seminars

Optics and laser physics programs and activities at ICTP

Gallieno Denardo (ICTP, Trieste, Italy)

International education resources & fellowship opportunities

Svetlana V. Boriskina (KNU, Kharkiv, Ukraine)

National sources of support for young researchers

Artem V. Boriskin (IRE NASU, Kharkiv, Ukraine)

We hope that this event will help you to get to know each other, network and share ideas, and will provide you with knowledge and skills necessary to build a successful career in science.

Svetlana V. Boriskina, KNU OSA Student Chapter Faculty Advisor and YRCDW Chair