

# **24th International Young Scientists Conference Optics and High Technology Material Science - SPO 2023 "STAND WITH UKRAINE"**

**Friday, 17 November 2023 - Sunday, 19 November 2023**

**Taras Shevchenko National University of Kyiv and Shizuoka University  
Programme**

## Friday 17 November 2023

### **Opening - 248 (16:00-16:30)**

time	title	presenter
16:00	Opening Remarks	Prof. KONDRATENKO, Serhiy (Taras Shevchenko National University of Kyiv, Faculty of Physics, Chair of Optics)
16:10	Beyond Two Decades of the SPO Conference	Prof. POPERENKO, Leonid (Taras Shevchenko National University of Kyiv, Faculty of Physics, Chair of Optics)
16:20	Decades of Collaboration: Shizuoka University and Taras Shevchenko National University of Kyiv	Prof. AOKI, Toru (Shizuoka University)

### **Plenary - 248 (16:30-17:30)**

**-Conveners: Kondratenko, Serhiy (Taras Shevchenko National University of Kyiv, Faculty of Physics, Chair of Optics)**

time	title	presenter
16:30	Overcoming of "Boltzmann tyranny" in MOSTET with the "cold metal" source	Prof. STRIKHA, Maksym (Taras Shevchenko National University of Kyiv, V.Lashkariov Institute of Semiconductor Physics, NAS Ukraine.)
17:00	Raman spectroscopy capabilities for characterization of semiconductors nanostructures	Prof. DZHAGAN, Volodymyr (V. Lashkaryov Institute of Semiconductors Physics, National Academy of Sciences of Ukraine, 03038 Kyiv, Ukraine)

### **Break - 248 (17:30-17:40)**

### **Multiferroics and Magnetoelectric Coupling: Invited talks - 248 (17:40-19:00)**

**-Conveners: Pocherpailo, Andrii (Taras Shevchenko National University Kyiv)**

time	title	presenter
17:40	Multiferroics: controlling magnetism with electric fields	Dr WEBER, Mads C. (Le Mans University / Institute of Materials and Molecules Le Mans)
18:10	Nanoscale Imaging of Ferroic Order with Soft X-ray Ptychography	Dr BUTCHER, Tim A. (Paul Scherrer Institute, Switzerland)
18:35	Probing the Electric-Field Induced Antiferroelectric-Ferroelectric Phase Transition in PbZrO <sub>3</sub> with Second Harmonic Generation Imaging	Dr LEVCHUK, Artem (CEA-Saclay)

### **Break - 248 (19:00-19:15)**

### **Emergent biosensing technologies - 248 (19:15-20:15)**

**-Conveners: Pocherpailo, Andrii (Taras Shevchenko National University Kyiv)**

time	title	presenter
19:15	Photophysics of the fluorescent guanine analog tzG	TKACH, Olha (Laboratoire de Bioimagerie et Pathologies, UMR 7021 CNRS Université de Strasbourg, Faculté de pharmacie)
19:30	Engineering thermoresponsive polymer coating on plasmonic nanostructures for drug delivery applications	MARIIA, Khutko (V.E. Lashkaryov Institute of Semiconductor Physics, National Academy of Sciences of Ukraine)
19:45	The Impact of Millimeter Waves on the Fluorescence of Aqueous Rhodamine 6G Solution	ILCHUCK, Danil (Taras Shevchenko Kyiv National University, Faculty of Physics, Ukraine)
20:00	Spectroscopic Investigation of BSA Protein and Thiochrome Dye Interaction	Ms RYZHKOVA, Anastasiia (Taras Shevchenko National University of Kyiv, Faculty of Physics)

**Break - 248 (20:15-20:30)**

**Spectroscopy techniques and applications - 248 (20:30-22:00)**

**-Conveners: Ilchuck, Danil (Taras Shevchenko National University of Kyiv)**

time	title	presenter
20:30	Processing of spectral data by self-similar difference equations.	PAVLOV, Evgen (University of Derby)
20:45	SERS-substrates with controllable localization of analyte in the plasmonic "hot-spots"	Dr MAZUR, Nazar (Department of Optics and Spectroscopy, V. Lashkaryov Institute of Semiconductors Physics, National Academy of Sciences of Ukraine, Kyiv, Ukraine. )
21:00	Photoluminescence of polymer-incorporated ZnO nanocrystals	ISAIEVA, Oksana (V. Lashkaryov Institute of Semiconductors Physics, National Academy of Sciences of Ukraine, Kyiv, Ukraine.)
21:15	Raman spectroscopy study on Cu <sub>2</sub> ZnSnS <sub>4</sub> -based nanocrystals and nanocomposites	KARNAUKHOV, Anatolii (V.Ye. Lashkaryov Institute of Semiconductor Physics of the NASU)
21:30	"Stimulated Raman scattering of laser dyes in a closed scattering shell"	HAIDUK, Tetiana (Taras Shevchenko National University of Kyiv)
21:45	Third Harmonic Generation through Stimulated Raman Scattering in Magnetized Plasma with Hermite cosh Gaussian Laser Beam	AZAD, Taruna (Lovely Professional University, India) Dr KAMBOJ, Oriza (Lovely Professional University,)

**Poster session - 248 (22:00-23:00)**

time	title	presenter
22:00	Change in microhardness of iron-copper nanocomposites depending on the content of multi-walled carbon nanotubes	MELNICHENKO, Mykola (Taras Shevchenko National University of Kyiv)
22:05	Influence of Environment on Vibrational Spectra of Hydrogen-Bonded Clusters	Ms ONUK, Marta (Taras Shevchenko National University of Kyiv)
22:10	Determination of optical constants for heterostructures with inner layer of Cu (Ag) by ellipsometric method	Mr HYRMAN , Igor (Taras Shevchenko National University of Kyiv)
22:15	Luminescence from ZnO Nanomaterial due to Defect Centers	LIMBU, Abhay (Lovely Professional University)
22:20	The Heavy Atom Effect on Spectro-Optical Properties of Pi-electron Containing Molecular Complex Based on Tryptanthrin	TKACH, Nazarii (Taras Shevchenko National University of Kyiv)
22:25	Interaction of nanosystems based on chlorine e6 with model phospholipid membranes	Dr SAMILOV, Oleksandr (Institute for scintillation materials of National academy of Sciences of Ukraine)

## Saturday 18 November 2023

### Session at Shizuoka University: Invited talks - 248 (15:00-16:00)

-Conveners: Ilchuck, Danil (Taras Shevchenko National University of Kyiv)

time	title	presenter
15:00	Spatial Representation of Multi-energy 3D X-ray Imaging Using Mixed Reality	Mr KASE, Hiroki (Research Institute of Electronics, Shizuoka University)
15:30	Long-term stability of diode-type CdTe X-/gamma-ray detector with high current density	Dr TAKAGI, Katsuyuki (Shizuoka University)

### Break - 248 (16:00-16:15)

### Session at Shizuoka University: Student talks - 248 (16:15-19:30)

-Conveners: Maria Kasianchuk

time	title	presenter
17:00	Annealing Effect of Thallium Bromide Thin Film	TOYODA, Kohei (Shizuoka University)
17:15	GaN Semiconductor X-ray Detectors	KAGEMITSU, Inaba
17:30	Improving the accuracy of X-ray beam visualization using augmented reality (AR)	KAWAKAMI, Takumi (Shizuoka University)
17:45	Formation of TlBr thin film for semiconductor radiation detector	HAYAKAWA, Shoma (Shizuoka University)
18:00	Image Correction of Reconstructed Photon Counting CT Images Using Shot Noise	KATAYAMA, Yutaro
18:15	Thermal Diffusion Doping for CdTe Semiconductor Radiation Detectors	NAKAMURA, Ibuki (Shizuoka university)
18:30	Simulation of X-ray scattering of material surrounded by soil	Mr IKEDA, Takehiro (Shizuoka University)
18:45	Development of GaN Semiconductor X-ray and Gamma-Ray Detectors	Mr HIDA, Kosuke (Shizuoka University)
19:00	Image-domain Material Decomposition in Spectral CT with Photon-counting Detectors	HAYASHI, Kohei (Shizuoka University)
19:15	Comparative Evaluation of X-ray Backscattered Energy Spectrum for Subsurface Material Characterization	Mr SAJJASHETTY VINAYAKA (Shizuoka University)