岡山

OptoX-NANO 2019

Current challenges of key enabling nanomaterials for emerging technologies: Optical, X-ray metrology and rational material design

2nd – 5th *December*, 2019

Okayama Convention Center, Okayama Japan

Submission deadline: 1 *September*, 2019

This conference series started in EMRS Spring Meeting 2003, Strasbourg, France and now it is at the 8th edition (organised for the 2nd time in Japan) aims to explore recent advances in photonic characterization of novel materials used in applications as varied as renewable energy, medical applications, and art restoration. Visible photons are very easy to produce and manipulate, and have the proper energy to characterize semiconductor materials, such as might be found in solar cells. Infrared and terahertz photons much lower energy and are harder to produce and manipulate, but give information about lattice vibrations and impurities in materials. X-rays are much higher energy, and therefore can explore material characteristics such as lattice spacing and atom identification.

OptoX-NANO 2019 conference aims at:

•giving an overview of: a) current challenges for rational material design and emerging devices modelling and design and b)the current status and future trends of optical, THz and X-ray metrology for key enabling nanoscale material characterization for emerging technologies, with a particular emphasis for ICT, Microwave/Terahertz, Renewable Energy and Energy storage, health and heritage conservation.

•promoting and encouraging young researches and academics interaction with industry to address scientific and technological challenges associated with the improvement of standard analytical methods and qualification of newer techniques suitable for addressing the needs for the emerging technologies of the future at nanoscale.

•promoting and encouraging networking activities between Europe (*EU ERASMUS/H2020/Horizon Europe, MINATEC/GIANT- Grenoble*) and Japan *(JSPS, JST, Riken, AIST, Japan Delegation for EU H2020/Horizon Europe)* within all these emerging fields of science and technologies that are expected to have a significant societal impact.

Conference Organizers:

Prof. Kenji Tsuruta, Okayama University, Japan

Dr. Mircea Modreanu, Tyndall National Institute-University College Cork, Ireland

Prof. Olivier Durand, UMR FOTON, CNRS, INSA, Rennes, France

Co-operation:

Okayama University, RIKEN, Tyndall National Institute-University College Cork

Contact:jointevent@ec.okayama-u.ac.jp

Website: http://opto-x-nano.com

Scope:

Metrology for Novel and Advanced Materials

Energy materials and devices (Catalysts, Nanocarbons, 2D Materials, Thermoelectrics, Ferroelectrics, β -Ga_2O_3, Perovskites, SiC; Emerging Solar cells, Energy Harvesting,)

Bio-related materials (Proteins, Cancer Cells, in-vivo and ex-vivo characterization)

Materials for New Mobility (Batteries, Supercapacitors, 5G/6G, Fuel cells, CFRPs)

Materials and devices for Information Technology and Photonics

Novel Meteorology and Measurements Systems

Spectroscopic Ellipsometry (from UV to THz)

High intense field (Synchrotron/High power laser)

Microwave/Terahertz Science and Applications

Raman/SERS/TERS/Nano-IR/Nano-Photoluminescence and Cathodoluminescence

Ultrafast Spectroscopy/ Optical Pump-probe techniques

High Resolution Transmission Electron Microscopy

Modeling/Simulation of Materials and Devices: First principles methods (DFT/Hybrid DFT, TDDFT), Mesoscale/Multiscale modelling and simulation (Hybrid FDTD-TDDFT), Machine-learning algorithms for material/device design

Metrology for Cultural Heritage

Industrial Applications: ICT, IoT, Health, Next Generation Wireless Communication (5G/6G), Microwave/Terahertz, Renewable Energy, Batteries, New instrumentation

Selected Hot Topics:

- Ellipsometric techniques (Mueller Matrix, Infrared, THz, time-resolved)
- X-ray synchrotron diffuse scattering and time-resolved X-ray synchrotron measurements
- Ellipsometric and other studies of photovoltaic materials and solar cells
- X-ray synchrotron sources and techniques developed to explore thin-layered materials
- Spatially resolved optical (e.g. TERS, SERS, Nano-IR) and x-ray techniques.
- Characterization of complex materials such as graphene, graphene oxide, 2D semiconductor materials, nanotubes and nanowires, phase change materials, nanoporous materials and composites.
- Characterization of β-Ga_2O_3, Inorganic-Organic Perovskites and SiC
- Nanostructures and metamaterials; plasmons at interfaces and in nanostructured materials.
- Dielectrics and ceramics; transparent semiconductors, ferroelectrics, ferromagnetics.
- First principles methods (DFT/Hybrid DFT, TDDFT), Mesoscale/Multiscale modelling and simulation

Invited speakers (confirmed):

Alessandro Re, Torino University, Italy
Alberto Castellero, Torino University, Italy
Dario Narducci, Milano Bicocca, Italy
Minoru Nohara, Okayama University, Japan
Hiroyuki Fujiwara, Gifu University, Japan
Vanya Darakchieva, Linkoping University, Sweden
Davide Mencarelli, Università' Politecnica delle Marche, Italy
Takashi Teranishi,Okayama University, Japan
Emilio Satoshi-Hara, Okayama University, Japan
Andrea Di Donato, Università' Politecnica delle Marche, Italy
Afshin Ziaei, Thales Research and Technology, France
Ian Povey, Tyndall National Institute, Ireland
My Ali Khakani, INRS, Canada,
Masayoshi Tonouchi, Osaka University, Japan
Ozaki Tsuneyuki, INRS, Canada,
Chiko Otani, RIKEN, Japan
Jin Tabata, Tokyo University, Japan
Noriaki Kida, Tokyo University, Japan
Yutaka Kadoya, Hiroshima University, Japan
SonJoo-Hiuk, University of Seoul, South Korea
Fabian Rotermund, KAIST, South Korea
JeonTae-In, Korea Maritime and Ocean University, South Korea
Nikolas Podraza, University of Toledo, USA (*to be confirmed*)
Marc Chaigneau, Horiba, France, (*to be confirmed*)
Alfred Q. R. Baron, RIKEN - SPRING-8, (*to be confirmed*)
Marco Malvestuto, Elettra, Trieste, Italy (*to be confirmed*)
Fulvio Parmigiani, Elettra, Trieste, Italy (*to be confirmed*)
Sergei Kazarian Imperial College London, UK

Jean-Louis Coutaz, University Savoie Mont Blanc, France (*to be confirmed*)