International Workshop on Nanomaterials for Energy Conversion, Emerging Photovoltaic and Optoelectronic Technologies (NEEPO-19)

October 7 - 9, 2019

Jointly organized by

National Centre for Physics (NCP), Islamabad & University of Konstanz, Konstanz Germany

Venue: National Centre for Physics, Islamabad

Introduction

Renewable and cost effective energy supply is one of the biggest challenge which has impact on human and global environment. The solar energy conversion technologies are entering into a new regime with inception of novel device architectures, nanotechnology and new materials for the devices. In particular, recently halide perovskite materials demonstrated outstanding performance with >25 % power conversion efficiency. The next generation hybrid solar cells with utilization of nanomaterials and technology are evolving as strong candidates for the cost-effective solutions to the energy crises. However, several challenges are also associated with the scale-up production and commercialization of these technologies. This workshop will focus on the recent developments in the field and challenges associated with the solar energy conversion, next generation photovoltaic and optoelectronic devices. The aim of this workshop is to gather scientists and engineers working in the relevant fields to discuss progresses, challenges, and future directions of emerging concepts in the field of photovoltaics and optoelectronics.

Topics

- Basics and recent developments in the field of solar energy conversion and solar cells
- Third generation solar cells, in particular developments in the field of the Perovskite solar cells and optoelectronics; their fabrication and characterization
- Metal oxide semiconductors for hybrid solar cells
- Nanostructured, 1D, 2D, and 3D absorbers and charge transport layers
- Engineered nanostructures for solar energy conversion
- Advanced techniques for characterization of energy materials and devices
- Interfaces and interfacial modifications in hybrid solar cells
- Defects and degradation of hybrid perovskite solar cells
- Water splitting and hydrogen generation using nano-architectures
- Two dimensional materials and their applications
- Emerging concepts in photovoltaics and optoelectronics

Participation

Research students, post-doctoral researchers, faculty members and scientists/engineers who are actively involved in the related research areas are encouraged to apply for participation and presentation (oral or poster). The travel expenses of the participants shall be borne by their parent institutes. Partial travel assistance may be provided to selected outstation student participants and speakers on merit basis. Shortlisted national participants will be intimated during third week of September 2019. There is no fee for foreign participants however they will have to arrange their travel expenses.

Best Poster Presentation Prize

To encourage the participation of young researchers/ students in the field, poster prizes will be awarded to three best presenters.

Registration Fee

Students: Local = Rs. 1000/-, Outstation: Rs. 2000/-
Employees: Local = Rs. 1500/-, Outstation: Rs. 2500/-

Technical Program

For further information and technical program please consult:
http://www.ncp.edu.pk/neepo-2019.php

For Further Information

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Technical Committee

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ICTP The Abdus Salam International Centre for Theoretical Physics

Advisors

Dr. Hafeez Hoorani (NCP)
Dr. Sara Qaisar (NCP)
Dr. S. K. Hassanain (COMSTECH)

Coordinators

Prof. Lukas Schmidt-Mende (University of Konstanz)
Dr. Muhammad Sultan (NCP, Islamabad)
Dr. Azhar Fakhruddin (IMEC, Belgium)

List of Speakers (Tentative)

Prof. Lukas Schmidt-Mende* (Uni. Konstanz, Germany): Perovskites - Defects and Interfaces
Prof. M. Khaja Nazeeruddin* (EPFL, Switzerland): Developments and prospects of perovskite solar cells
Prof. Shengzhong Liu (Shaanxi Normal University China): High efficiency perovskite solar cells and optoelectronic devices
Dr. M. Adib Ibrahim (Uni. Kebangsaan Malaysia**):** Novel nanomaterials for photovoltaic applications
Dr. Azhar Fakharuddin* (IMEC, Belgium): Light from perovskite crystals
Prof. Dr. Ahmed Shuja (IIUI): Revisiting the materials, devices and systems matrix for applications in PV solar and optoelectronics
Dr. Azhar Iqbal (QAU): Ultrafast charge dynamics at interface of hybrid materials
Prof. Muhammad Hassan Sayyad (GIKI): Commercialization of next generation solar cells
Dr. Khurram Joya (KFUPM Saudi Arabia): Functional nanomaterials for energy applications
Dr. Zafar Hussain Ibupoto (Uni. Sindh, Jamshoro): Metal Oxide Nanostructures for energy applications
Dr. Safeer Ahmad (QAU): Water splitting
Dr. Saifullah Awan (NUST): Physics of metal-oxide semiconductors
Dr. Gul Rehman (QAU): Theoretical calculations for energy materials and devices
Dr. M. Zahir Iqbal (GIKI**):** Two dimensional materials and their application
Dr. Naveed Zafar Ali (NCP): Conceptual design of novel framework materials for Fuel Cell technology
Dr. S. Qamar Hussain (Comsats Uni. Lhr): Advanced light scattering techniques for thin-film solar cells
Dr. Muhammad Usman (GIKI): GaN-based light-emitting diodes
Dr. Arbab M. Toufiq (Hazara Uni.): Nanomaterials for high power fiber lasers applications
*Video lectures

Workshop Secretary

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