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 >23% 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/-

How to Apply

For online registration, application form can be accessed at:
http://ncp.edu.pk/neepo-2019.php

For Further Information

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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): Physics of Hybrid and Perovskite solar cells
Prof. M. Khaja Nazeeruddin* (EPFL, Switzerland): Developments and prospects of Perovskite solar cells
Prof. Norani Muti Mohamed (Uni. Tekn. Petronas, Malaysia): Low dimensional semiconductors processing and nanotechnology
Prof. Thomas Brown* (Uni. Rome Italy): Flexible perovskite solar cells
Prof. Dr. S. K. Hassanain (COMSTECH): Metal-oxide semiconductors
Dr. Azhar Fakharuddin (IMEC, Belgium): Perovskite based optoelectronic devices
Prof. Dr. Ahmed Shuja (IIUI): Recent developments in the field of Photovoltaics and optoelectronic devices
Prof. Shahzad Naseem (CESSP, Uni. of Punjab): Nanomaterials for photovoltaic applications
Dr. Azhar Iqbal (QAU): Ultrafast charge dynamics at interface of hybrid materials
Prof. Muhammad Hassan Sayyad (GIKI): Commercialization of next generation solar cells
Dr. Safeer Ahmad (QAU): Water splitting
Dr. Afzal Hussain Kamboh (PCRET): Doped perovskite materials for solar cell application
Dr. Gul Rehman (QAU): Theoretical calculations for energy materials and devices
Dr. Zohair S. Khan (NUST): Thin film solar cells
Dr. M. Zahir Iqbal (GIKI**)**: Two dimensional materials and their application
Dr. Abdul Basit (IST**)**: Quantum dot solar cells
Dr. Amna Bashir (QAU): Carbon based Perovskite solar cells and scale up fabrication
*Video lectures

Workshop Secretary

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Application Deadline:

July 1, 2019 for Foreign Participants
September 6, 2019 for National Participants