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## International Conference and Exhibition on Mesoscopic & Condensed Matter Physics

June 22-24, 2015 Boston, USA

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conferenceseries.com 09:30-9:55

## Opening Ceremony

### Keynote Forum

- 09:55-10:00 **Introduction**
- 10:00-10:30 **Peter L. Hagelstein**  
Massachusetts Institute of Technology, USA
- 10:50-11:20 **Arun Bansil**  
Northeastern University, USA
- 11:20-11:50 **Mehdi Anwar**  
University of Connecticut, USA

Coffee Break 10:30-10:50@Foyer

### Track 9: Applications and New Dimensions in Technology

Session Chair: Peter L. Hagelstein, Massachusetts Institute of Technology, USA

Session Co-Chair: Mehdi Anwar, University of Connecticut, USA

Session Introduction

- 11:50-12:10 **GaN HEMTs for next generation electronics**  
Puneet Srivastava, Massachusetts Institute of Technology, USA  
Clean unit system platform in "atom-bit-energy/ environment" space for high-efficiency solar cells and
- 12:10-12:30 **kinetosomnogram (KSG) applications**  
Akira Ishibashi, Hokkaido University, Japan
- 12:30-12:50 **Large spin-dependent thermoelectric effects using CoFe-based alloy**  
Takashi Kimura, Kyushu University, Japan
- 12:50-13:10 **Three-component gyrotropic metamaterial**  
Igor Tralle, University of Rzeszow, Poland
- 13:10-13:30 **Study of molecular dynamics in two liquid crystal dimers using laser Raman spectroscopy**  
P R Alapati, North Eastern Regional Institute of Science and Technology, India

Lunch Break 13:30-14:30@Foyer

- 14:30-14:50 **Topological defects in graphene nanostructures**  
Jan Smotlacha, Joint Institute for Nuclear Research, Russia  
Impact of ambient H<sub>2</sub>S atmosphere on the growth and properties of vacuum evaporated sulfide
- 14:50-15:10 **semiconductors thin films for device applications**  
Beer Pal Singh, CCS University, India

### Track 3: Phase Phenomena and Electronic Phenomena

Session Chair: Daniel Prober, Yale University, USA

Session Co-Chair: Igor Tralle, University of Rzeszow, Poland

- 15:10-15:30 **Ultrasensitive far-infrared / THz detection with graphene photodetectors**  
Daniel Prober, Yale University, USA  
Spin-singlet resonance state in proton-embedded metals: Discovery of novel high-T<sub>K</sub> system leading
- 15:30-15:50 **to high-T<sub>c</sub> superconductivity**  
Yasutami Takada, University of Tokyo, Japan

**15:50-16:10** Peculiar physical properties and material synthesis by self-organization  
Tsuyoshi Takami, Osaka University, Japan

Coffee Break 16:10-16:30@Foyer

Young Researcher Forum

**16:30-16:50** STM Prediction for Klein tunneling in graphene p-n junctions  
Dian Shi, University of California, USA

Workshop

**16:50-17:50** Smart Materials  
Ajay Kumar Mishra, University of South Africa, South Africa

Day 2 June 23, 2015

University A

Keynote Forum

**09:00-09:30** Carol Heckman  
Bowling Green State University, USA

**09:30-10:00** Timothy R Field  
McMaster University, Canada

Track 3: Phase Phenomena and Electronic Phenomena

Track 4: Magnetic Phases

Track 5: Quasiparticles and Soft Matter &

Track 6: Quantum Optics

Session Chair: Daniel Prober, Yale University, USA

Session Co-Chair: Igor Tralle, University of Rzeszow, Poland

Session Introduction

**10:00-10:20** Nematic-driven anisotropic electronic properties of underdoped detwinned Ba(Fe<sub>1-x</sub>Cox) 2As<sub>2</sub> revealed by optical spectroscopy  
L. Degiorgi, ETH - Zürich, Switzerland

Coffee Break 10:20-10:40@Foyer

**10:40-11:00** Undulator-like radiation and cooperative phenomena in semiconductor microstructures with grating  
Igor Tralle, University of Rzeszow, Poland

**11:00-11:20** First-principles study of large spin-orbit coupling transition-metal compounds: electronic structure and new possibilities  
Myung Joon Han, Korean Advanced Institute of Science and Technology, South Korea

**11:20-11:40** Biologically motivated computational toolbox for energy optimization of nanoelectronic systems  
A F Isakovic, Khalifa University, UAE

**11:40-12:00** Unraveling the Physics of Strongly Correlated Electron Systems through Nuclear Magnetic Resonance  
Nicholas Curro, University of California, USA

**12:00-12:20** Pure spin current in a broad range of materials generated by YIG-based spin pumping  
Fengyuan Yang, The Ohio State University, USA

**12:20-12:40** The fate of quasiparticles at a Kondo destroying antiferromagnetic instability  
Frank Steglich, Max Planck Institute for Chemical Physics of Solids, Germany

Lunch Break 12:40-13:40@Foyer

**13:40-14:00** Shaping the quantum wavepacket of free electrons  
Ido Kaminer, Massachusetts Institute of Technology, USA

**14:00-14:20** Nanoscale junctions utilizing magnetic thin-film edges  
Hideo Kaiju, Hokkaido University, Japan

**14:20-14:40** Neutron scattering investigations on multiferroic materials: Advances in polarized neutron utilization  
Kazuhisa Kakurai, Quantum Beam Science Center, Japan Atomic Energy Agency, Japan

**14:40-15:00** **<sup>1</sup>H and <sup>31</sup>P NMR spectroscopy of dynamic structures in nano- and mesostructured hydroxyapatites**  
Vytautas Balevicius, Vilnius University, Lithuania

**Young Researcher Forum**

**15:00-15:20** **Theory of metal/metal multi-contact interfaces: Implications of the coupling between the electrical and thermal transfer processes**

N Foy, Universite de Picardie J. Verne, France

**15:20-15:40** **Turning electric and magnetic properties of hydrogen-terminated arm chair boron nitride nanoribbons by adsorption of Cr and Mn atom**

Yusuf Zuntu Abdullahi, Universiti Sains Malaysia, Malaysia

Coffee Break 15:40-16:00@Foyer

**Workshop (Session A)**

**16:00-17:30** **Work Shop: Electronic Structure of Carbon Nano materials**

Jan Smotlacha, Joint Institute for Nuclear Research, Russia

**Day 3 June 24, 2015**

**University A**

**Workshop (Session B)**

**09:00-10:30** **Work Shop: Electronic Structure of Carbon Nano materials**

Jan Smotlacha, Joint Institute for Nuclear Research, Russia

Coffee Break 10:30-10:50@Foyer

Track 1: The States of Matter

Track 2: Phase Phenomena and Electronic Phenomena

Track 7: Organic Electronics

Track 8: Properties of Cellular Networks and Mesoscale Systems in Biology

Session Chair: Xiaoming Wen, University of New South Wales, Australia

Session Co-Chair: Fengyuan Yang, The Ohio State University, USA

**Session Introduction**

**10:50-11:10** **Functional magnetic nanoparticles following Néel relaxation system for hyperthermia treatment**

Yuko Ichyanagi, Yokohama National University, Japan

**11:10-11:30** **Recent advances in nanocomposites**

Ajay Kumar Mishra, University of South Africa, South Africa

**11:30-11:50** **Three-dimensional topological insulators - a new phase of quantum matter; growth issues and the properties of bismuth chalcogenides**

Agnieszka Wolos, University of Warsaw, Poland

**11:50-12:10** **Photo-physics of organic semiconductors and a fundamental challenge for economic viability of organic solar cell technology**

Lokendra Kumar, Purdue University, USA

**12:10-12:30** **Density dependent carrier dynamics in organic-inorganic metal halide perovskite**

Xiaoming Wen, University of New South Wales, Australia

**12:30-12:50** **Quantum Spin Liquid, Topological Order and Entanglement Entropy**

Hong-Chen Jiang, SLAC National Accelerator Laboratory and Stanford University, USA

**12:50-13:10** **Synthesizing hydrocarbons from carbon dioxide and water with metal nanostructures and solar energy**

Mengyan Shen, University of Massachusetts Lowell, USA

Lunch Break 13:10-14:10@Foyer

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**Mesosopic & Condensed Matter Physics**

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