

December 17, 2012, Monday

08:00 am - 09:00 am Breakfast PC Saxena Auditorium

PC Saxena Auditorium

09:30 am - 10:15 am **Keynote- Prof. Kaushik Roy, Purdue University, USA**
Spin as State Variable for Computation: Prospects and Perspectives

10:15 am - 11:00 am **Keynote - Prof. Gerrit Bauer, TU Delft and Tohoku University, Japan**
Spin caloritronics –more than spin-dependent thermoelectric

11:00 am - 11:15 am Tea break

11:15 am - 12:00 pm **Keynote- Prof. Nitin Samarth, Penn State University, USA**
Topological Insulators: New Routes To Semiconductor Spintronics

12:00 pm - 12:45 pm **Keynote – Prof. Juzer Vasi, EE, IIT Bombay**
Nanostructures for Photovoltaic Devices

12:45 pm - 02:00 pm Lunch PC Saxena Auditorium

Session 1

PC Saxena Auditorium

02:00 pm - 02:30 pm
Dr. Sandeep Sangameswaran, Philips, Eindhoven (Invited)
Electronic Packaging Challenges for Emerging Devices

02:30 pm - 02:50 pm
Monika Bhattacharya et al., University of Delhi
Impact of Noise Temperature Constant and Diffusion Coefficient on the Minimum Noise Figure and Minimum Noise Temperature of InAlAs/InGaAs DG-HEMT

02:50 pm - 03:20 pm
Naveen Karumuri et al., IIT Madras
An Analytical Charge Control Model for AlGaIn/GaN HEMT including the Gate bias dependence on Polarization Charge

Session 2

Institute Auditorium, SOM

02:00 pm - 02:30 pm
Prof. B. Muralidharan, EE, IIT Bombay (Invited)
Power-efficiency trade-off in nanoscale thermoelectric energy conversion

02:30 pm - 02:50 pm
Harshil N. Raval et al., IIT Bombay
Solution Processed Organic Electronic Devices as Sensors for Ionizing Radiation

02:50 pm - 03:20 pm
Rekha Singh et al., IIT Bombay
Novel Layer by Layer (LBL) Approach for the Fabrication of Highly Transparent and Conducting Thin Films for Flexible Electronics, Based on PEDOT, via the Solution Processable Route

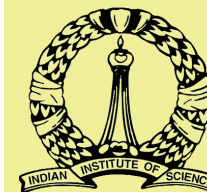
03:20 pm - 03:30 pm Closing Ceremony PC Saxena Auditorium

International Conference on Emerging Electronics ICEE 2012

**December 15-17, 2012
IIT Bombay**

Jointly organized by
IIT Bombay and IISc Bangalore

Sponsors



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December 15, 2012, Saturday

08:00 am - 09:00 am Breakfast / Registration PC Saxena Auditorium

PC Saxena Auditorium

09:30 am - 09:50 am **Inauguration and Welcome address**
 09:50 am - 10:35 am **Keynote - Prof. Ajay Sood, IISc Bangalore**
 Nanotubes, Graphene and Dendrimers based nanodevices

10:35 am - 11:00 am Tea break

11:00 am - 11:45 am **Keynote - Dr. Omkaram Nalamasu, CTO Applied Materials, USA**
 Nanomanufacturing for electronics

11:45 am - 12:30 pm **Keynote- Prof. R. P. Jindal, Louisiana University, USA**
 Harnessing a few to do the work of a million: The next technological challenge

12:30 pm - 02:00 pm Lunch PC Saxena Auditorium

Session 1 Session 2

PC Saxena Auditorium

02:00 pm - 02:30 pm
Dr. Ed Cartier, IBM (Invited)
 High K Metal Gates and Reliability

02:30 pm - 03:00 pm
Dr. Ben Kaczer, IMEC, Belgium (Invited)
 Assessing reliability of nano-scaled CMOS technologies one defect at a time

03:00 pm - 04:00 pm Tea Break and Poster Session SOM Foyer

04:00 pm - 04:20 pm
Abhijit Mallick et al., University of Calcutta, Kolkata
 Spacer-Drain Overlap Dependence of Subthreshold Characteristics for Tunnel Field-Effect Transistors Based on Vertical Tunneling

04:20 pm - 04:40 pm
Revathy Padmanabhan et al., IISc Bangalore
 High-Density Metal-Insulator-Metal Capacitors Using Gd_2O_3 -Based Dielectrics

04:45 pm - 06:15 pm **Panel Discussion: Catalyzing and Sustaining Semiconductor Manufacturing in India**
 Panel Members consist of representatives from Govt. of India (Deity, DRDO, etc.), Industry leaders (Applied Materials, IBM, etc.), Research consortia (IME, Albany Nanotech, etc.), and Academics.

07:30 pm - 10:00 pm Dinner PC Saxena Auditorium

Institute Auditorium, SOM

02:00 pm - 02:30 pm
Prof. Arindam Ghosh, IISc Bangalore (Invited)
 Achieving enhanced electro-optic functionality with hybrids of ultra-thin membranes

02:30 pm - 03:00 pm
Prof. H. Joerg Osten, Institute of Electronic Materials and Devices, Germany (Invited)
 Strain-driven enhancement of dielectric properties in thin metal oxides layers epitaxially grown on silicon

04:00 pm - 04:20 pm
Saibal Roy et al., Tyndall National Institute, Ireland
 Self-aligned inkjet printing of organic TFTs/Circuits

04:20 pm - 04:40 pm
Sonali Das et al., BESU, Howrah
 Index tuned nanoparticle coating on dielectric film for improved photon transmission and enhanced performance for silicon solar cells

December 16, 2012, Sunday

08:00 am - 09:00 am Breakfast PC Saxena Auditorium

PC Saxena Auditorium

09:30 am - 10:15 am **Keynote- Prof. Rao R. Tummala, Georgia Tech., USA**
 Next Revolution in Electronics: System Scaling for Smart Mobile Systems

10:15 am - 11:00 am **Keynote- Dr. Marie-Noëlle Semeria, Director of Scientific Research, CEA Tech., France**
 Low Power Nanoelectronics

11:00 am - 11:15 am Tea break

11:15 am - 12:00 pm **Keynote- Prof. Vikram Dalal, Iowa State University, USA**
 Photovoltaic Energy Conversion: Status and Challenges

12:00 pm - 12:45 pm **Keynote- Prof. Rajendra Singh, Clemson University, USA**
 Green Energy Conversion & Storage for Solving India's Energy Problem through Innovation in Ultra Large Scale Manufacturing and Advanced Research of Solid State Devices and Systems

12:45 pm - 02:00 pm Lunch PC Saxena Auditorium

02:00 pm - 02:45 pm **Keynote- Prof. Thomas Thundat, University of Alberta, Canada**
 MEMS and NEMS for Standoff Sensing

02:45 pm - 03:30 pm **Keynote- Prof. Muhammad Ashraf Alam, Purdue University, USA**
 In Search of a Landau Switch

03:30 pm - 04:30 pm Tea Break and Poster Session SOM Foyer

Session 1 Session 2

PC Saxena Auditorium

04:30 pm - 05:00 pm
Prof. S. K. Ray, IIT Kharagpur (Invited)
 Nanocrystal Based Memory Devices

05:00 pm - 05:30 pm
Prof. Saurabh Lodha, EE, IIT Bombay (Invited)
 Gate stack and source/drain engineering for enabling Ge CMOS

05:30 pm - 05:50 pm
Sandeep Lashkare et al., IIT Bombay
 Design of Epitaxial Si punch-through diode based selector for High Density Bipolar RRAM

05:50 pm - 06:10 pm
Naga Bharath Daka et al., IIT Madras
 Comparison of Direct Tunneling in Metal-GaN Schottky Junctions Using Different $k \cdot p$ Models for the Complex Bandstructure

06:10 pm - 06:30 pm
Murali Golve et al., IIT Bombay
 Novel Architectures for Zinc-Oxide Junctionless Transistor

Institute Auditorium, SOM

04:30 pm - 05:00 pm
Prof. Ananthasuresh, IISc, Bangalore (Invited)
 Micromechanical Signal Processors

05:00 pm - 05:30 pm
Dr. M. K. Radhakrishnan, NanoRel. (Invited)
 Physical Analysis Challenges and Interface Physics Studies in Silicon Nanodevices

05:30 pm - 05:50 pm
Harikrishnan V. et al., IIT Bombay
 Humidity Sensing Properties of Graphene Quantum Dots

05:50 pm - 06:10 pm
Mahidhar Nyayapati et al., IISc Bangalore
 Analog Vibration Spectrum Sensor

06:10 pm - 06:30 pm
Ajay Kushwaha et al., IIT Bombay
 Roughness Enhanced Surface Defects and Photoconductivity of Acid Etched ZnO Nanowires

07:30 pm - 10:00 pm Dinner PC Saxena Auditorium