

## “2-Dimensional Materials for Next Gen Electronics”



Pizza will  
be served!

**Rudresh Ghosh, Microelectronics Research Center, University of Texas at Austin**

*Time: 3:00 pm, Wednesday, February 10th, 2016;*

*Location: MER Room 2.114, 10100 Burnet Road Building 160, Austin TX 78758*

**Abstract:** The digitization of physical objects has the potential to change the way we live and interact with our surroundings. These smart digitized physical objects with embedded electronics can sense, collect and exchange information and be part of the “Internet of Things.” Smart devices will also need to be versatile and robust. Rigid devices will be replaced by conformable, flexible electronics that can be integrated into various applications. In order to meet these requirements, there is a critical need for new materials and device architectures. Two-dimensional (2D) materials are atomically thin and allow for the ultimate thickness scaling in nanoelectronics. They are perfectly suited to meet the need for smaller, thinner and flexible electronics while also opening up new device opportunities. In this talk I will discuss the current state of 2D electronics and the opportunities and bottlenecks in their adaptation into modern electronics. I will highlight our research efforts in exploring new modular, scalable synthesis routes and characterization tools and techniques especially suited for 2D materials. I will then demonstrate device results of flexible electronics built from these synthesized 2D materials. I will conclude with an overview of the exciting research challenges and opportunities in the future of 2D materials.



**Bio:** Dr. Rudresh Ghosh is a Post-doctoral Fellow at the Microelectronics Research Center at the University of Texas at Austin. His research interest lies in the synthesis and characterization of novel material systems. His research in this field has been published in scientific journals such as Nature Communications, Advanced Materials, Nano Letters and Applied Physics Letters. It has also been highlighted by technical news media such as NanoWerk and Nanotechweb. Rudresh is also a Senior Scientist at Applied Novel Devices Inc., where he leads the company’s efforts in commercializing Molybdenum Sulfide (MoS<sub>2</sub>) based electronics for radio frequency and sensor applications.

Before moving to Austin, Rudresh earned his Ph.D. in Physics from the University of North Carolina at Chapel Hill (UNC-CH). As a Graduate Research Assistant he worked with Prof. Rene Lopez, and was a member of the UNC – Energy Frontier Research Center. His work involved exploring thin film growth using pulsed laser deposition and tailoring the morphology of these films for photovoltaic and gas sensing applications.

Rudresh obtained his Master’s degree in Physics from the Indian Institute of Technology, Bombay and his Bachelor’s degree also in Physics from the University of Calcutta.