Seminar: **Printed Electronics: Materials, Processes and Applications**

Presenter: **Rudresh Ghosh, Academic Liaison/Applications Engineer, Novacentrix**

Location: Microelectronics and Engineering Research Center (MER 160), Room 2.114, 10100 Burnet Road, Austin TX 78758

Time: Friday, October 27, 2017, at 2:00 - 3:30 PM CDT. (*Pizza provided.*)

Abstract: The Internet of Things consists of interconnected computing devices embedded in everyday objects that sense, process and transmit data among themselves. These devices are very distinct (both in terms of architecture and functionality) from conventional devices. Ideally, these devices combine flexibility, low cost and high performance. One route to achieving these properties is to use mature printing technologies on low cost flexible substrates. However, flexible substrates usually tend to be thermally fragile. This has led to the implementation of novel post processing techniques. In this talk, we introduce one such process: Photonic Curing.

Photonic Curing is an industrial thermal process in which a thin film is heated with pulsed light from a flash lamp. When the film is heated on a substrate, the bulk of the substrate stays relatively cool since the exposure time is so brief (~1ms). When this transient processing is performed on substrates that have relatively low thermal damage threshold, such as plastic or paper, it is possible to attain significantly higher temperatures in the thin film without damaging the substrate compared to a conventional oven. Since photonic curing tools quickly cure thin films at high temperature on low temperature substrates, it is ideal for roll-to-roll processes on polymer or paper.

For this talk we focus on how researchers around the world are using PulseForge tools for exploring new materials, substrates and processes for printed electronics and photovoltaic applications.

Dr. Rudresh Ghosh is an Applications Engineer at NovaCentrix where he works on investigating photonic curing as a processing tool for printed electronics and how printed electronics can be used for various novel applications.

Before joining NovaCentrix he was a Post-Doctoral Fellow at the Microelectronics Research Center at the University of Texas at Austin where he led the Center's efforts in the synthesis and characterization of 2D materials. Rudresh earned his Ph.D. in Physics from the University of North Carolina at Chapel Hill. 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.