

# SEMINAR NOTICE

Department of Electrical and Systems Engineering

## Terahertz Optoelectronics: New Devices, Techniques, and Applications

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**Abstract:** The terahertz spectral range has traditionally been referred to as the gap in the electromagnetic spectrum. While there has been recent success in developing sources and detectors, there has been little work in the developing requisite device technologies. The use of plasmonics, which refers to surface excitations at metal-dielectric interfaces, is aggressively being pursued to develop the requisite capabilities. This approach offers several attractive features such as the possibility for a simplified device topology, subwavelength field localization, and low-loss transmission of electromagnetic radiation. I will describe my work in understanding the properties of surface plasmons at terahertz frequency and its relevance to developing unique and useful optoelectronic devices. Due to scale invariance of Maxwell's equations, these concepts and ideas should have equal implications at optical frequencies.

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10:00 a.m.

Bryan Hall, Room 305

Host: R. Martin Arthur

**Bio:** Amit Agrawal is a Postdoctoral Research Associate in the CNST Nanofabrication Research Group at the National Institute of Standards and Technology, Gaithersburg, MD. He received a B.E. (honors) in Electronics and Telecommunications from the Pt. Ravishankar Shukla University, India (2002), and M.S. and Ph.D. degrees in Electrical Engineering from the University of Utah (2005 and 2008 resp.). His research interests include nanoplasmonics, metamaterials, nanophotonics, terahertz optoelectronics, nonlinear optics and ultrafast optics. Amit is a recipient of the 2006 University of Utah Graduate Research Fellowship and is a 2007 IEEE/LEOS Graduate Student Fellow. He is also a recipient of the prestigious 2007 D. J. Lovell Scholarship from the International Society of Optical Engineering (SPIE).