

**University of Rochester**  
**Department of Electrical and Computer Engineering**

**Generation, Detection, and Applications of THz Radiation**

**Professor Arturas Jukna**

**Wednesday, February 1st**

**12:00PM – 1:00PM**

**Computer Studies Building (CSB) 209**

Abstract: THz radiation covers a frequency range from approximately 0.3 to 30 THz in the electromagnetic wave spectrum and, presently, can be reached by a variety of different methods ranging from cascade lasers to electro-photonics. In practical arrangements, THz waves propagate by quasi-optical means as well-defined beams that can be launched into free space using proper antennas. There is a large number materials that are either fully transparent to THz signals or have unique absorption “signatures” in the THz frequency spectrum and this is why THz technology has recently gained a widespread interest in applied research areas ranging from space exploration to detection of concealed objects, and drugs and explosives identification. This lecture reviews basic generation and detection methods, as well as applications of transient bursts of THz radiation. Such radiation bursts are simply subpicosecond in duration electromagnetic pulses with the frequency spectrum extending well into the THz range. As a specific example, we will present most recent research results of our group on THz characterization of graphene nano-flakes imbedded in a polymer matrix and single-wall carbon nanotubes suspended in an solution or spin-coated on dielectric substrates.

Bio: Dr. Arturas Jukna is a Professor and Chair at the Department of Physics, Vilnius Gediminas Technical University in Vilnius, Lithuania. Since June 2016, he is also with the University of Rochester as a Visiting Scientist and Fellow of the Baltic-American Freedom Foundation. In Rochester, he works together with the group of Professor Roman Sobolewski in the area of ultrafast optical and electric characterization of novel materials and nano-devices.

Pizza and soda provided.