



Department of Physics - University of South Alabama
Presents Colloquium Speaker



Dr. Douglas Petkie
Wright State University

Thursday, October 22, 2009
4:00 p.m., ILB Room 250



Millimeter-wave and Terahertz Physics and Sensing Applications

The millimeter-wave and terahertz regions of the electromagnetic spectrum have a long and rich history in the area of high-resolution, gas-phase molecular spectroscopy that is based on well-established physics and the continuous advancement of technology over the past 40 years. This has led to the detection of molecules in space and the ability to monitor molecules in the upper atmosphere that are associated with stratospheric ozone chemistry. This spectral region also possesses a unique combination of attributes that include high transmission through most dielectric materials along with the ability to develop imaging systems, properties associated with the microwave and infrared/optical regions of the spectrum, respectively. Due to these advantages, several terrestrial applications under development include radar systems for the standoff detection of human vital signs for triage and imaging systems for non-destructive evaluation. However, progress in the development of these applications remains slow due to the lack of affordable commercial technologies, leading to both technological and scientific gaps. This talk will discuss the basic underlying physics for each of these applications as well as a discussion of emerging technologies and commercial opportunities.

All interested persons are invited to attend. Refreshments are served at 3:45 p.m.

Host: Dr. R. Godang