

2021 – 2022 Seminar Series

Terahertz Nondestructive Evaluation: Characterizing Materials in Three Dimensions



David S Citrin

Professor

*School of Electrical and Computer Engineering
Georgia Institute of Technology
Atlanta, GA*

The terahertz region of the electromagnetic spectrum (100 GHz-10 THz) lies between the microwaves and infrared, and only in the past few decades has been opened for practical applications. Because many electrical insulators are transparent to terahertz radiation, terahertz techniques have attracted interest for three-dimensional imaging—including of the interior—of objects that may be otherwise (such as optically) opaque or not amenable to other three-dimensional imaging techniques (such as ultrasound). Moreover, terahertz approaches offer three-dimensional resolution down to the 10-micron level, nor is terahertz radiation ionizing, making it a safe alternative to x-rays for some applications. In this talk I review our work on terahertz nondestructive evaluation for applications ranging from aerospace to archaeology. The workhorse technique we employ is time-of-flight tomography, but equally important is signal processing to extract information in some cases below the resolution limit.

Wednesday, March 16th @ 11:45AM

Zoom



Stony Brook University

Faculty Host: Hassan Arbab