

**UNIVERSITY OF RHODE ISLAND**  
**Department of Chemistry**  
**SEMINAR**

**Room 105, Beupre Center**  
**3:00p.m., Monday, September 30, 2019**

***Dr. Ben Saute***

***Telops***

***“Fundamentals and Applications  
of Thermal Infrared  
Hyperspectral Imaging for  
Remote Characterization of  
Materials”***

**HOST**

***Jason Dwyer***  
**Department of Chemistry**  
**401-874-4648**

## ***Fundamentals and Applications of Thermal Infrared Hyperspectral Imaging for Remote Characterization of Materials***

Hyperspectral thermal infrared imaging is a powerful technique for remote detection, identification, and quantification of unknown materials. Hyperspectral imaging combines high spatial and spectral resolution to generate a 3-dimensional data product called a hypercube. The x- and y-dimensions of the hypercube represent the traditional spatial axes of an image, while the z-dimension contains continuous, high-resolution spectral information. This three-dimensional hypercube is analogous to a two-dimensional thermal image where each individual pixel has an associated infrared spectrum.

This seminar will present an introduction to hyperspectral/multispectral infrared imaging technology with an emphasis on fundamental concepts of thermal remote sensing, instrumentation, calibration, and data exploitation. The application space for hyperspectral/multispectral infrared imaging will also be discussed, with an emphasis on applications related to defense, environmental monitoring, and mining/resource exploration.