Physics Colloquium

"Hyperspectral Imaging: Current Applications and Future Trends"

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4:10 – 5:00 pm, 108 EPS

Abstract: Hyperspectral imaging is an exciting technology which is finding new applications in both research and industry. Hyperspectral imaging involves measuring a continuous reflectance spectrum for a complete 2-dimensional image. This produces a spectrum for each pixel in the image, where each spectrum is typically composed of hundreds of contiguous bands.
Since different materials have different reflectance spectra, hyperspectral imaging is capable of locating different materials in an image. Furthermore, the reflectance properties of plants and other organisms undergo small shifts when they are subject to external stresses. Hyperspectral imaging thus offers insight into small environmental changes, and is capable of, for example, differentiating between healthy and diseased crops, identifying a weed infestation, or locating sources of pollution. Particularly exciting is the combination of hyperspectral imaging with factory robots to enable automated sorting technologies. As computers increase in speed and size and decrease in cost, so-called "machine vision" applications are becoming economically feasible and increasingly common. In this talk Casey and I will present the basic concepts of hyperspectral imaging as well as a few applications of this exciting technology.

Host: Shannon Willoughby
Refreshments 3:45 p.m. Courtesy of Aleks Rebane
EPS 2nd Floor Atrium