

# SEMINAR NOTICE

Preston M. Green Department of Electrical and Systems Engineering

## High-Resolution Low-Noise Polarization Imaging Sensor for Astronomical Applications

MS Dissertation Defense

By

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**Abstract:** Polarization imaging is useful to the field of astronomy because the polarization state caused by reflections, scattering events, and magnetic fields can be used to infer properties such as shape and index of refraction about celestial bodies. This work presents a of low-noise high-resolution polarization imaging sensor consisting of a CCD imager overlaid with a nanowire linear polarizer filter array of four different orientations ( $0^\circ$ ,  $45^\circ$ ,  $90^\circ$ , and  $135^\circ$ ) matched to the pixel pitch. Fabrication details and experimental setup for characterization are discussed. The performance of the sensor is assessed over a range of polarization states, light intensities, wavelengths, and incident angles; a model for crosstalk is also presented.

DATE: Friday, August 30, 2013  
TIME: 3:00 p.m.  
PLACE: Green Hall, Room 0120

**Research Advisor:**

Dr. Viktor Gruev

This seminar is in partial fulfillment  
of the Masters Degree