

SEMINAR NOTICE

Preston M. Green Department of Electrical and Systems Engineering

Optical Resonators and Fiber Tapers as Transducers for Detection of Nanoparticles and Bio-Molecules

MS Dissertation Defense

By

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Abstract: In recent years, detection of biological interactions on single molecule level has inspired many researchers to investigate several optical, chemical, electrical and mechanical sensing tools. Among these tools, toroidal optical resonators lead the way in detection of the smallest particle/molecule with the real time measurements. In this work, bio-sensing capabilities of toroidal optical resonators are investigated. Bio-sensing is realized via measuring the analyte-antigen interaction while the antigen is immobilized through a novel functionalization method.

Not long ago, detection of single nanoparticles using optical resonators has been accomplished however the need for cost-effective and practical transducers demands simpler tools. A tapered optical fiber is a suitable and efficient candidate as a practical tool. In this work, single nanoparticle detection measurements are performed in aqueous solutions and detection limit of fiber taper is investigated.

DATE: Tuesday, August 5, 2014
TIME: 2:00 p.m.
PLACE: Green Hall, Room 0120

Dissertation Advisor:
Dr. Lan Yang

This seminar is in partial fulfillment
of the Master's Degree