Georgia Tech

Materials Research Science and Engineering Center

MRSEC SEMINAR SERIES

Nanomaterials for Detection and Inhibition of Bacterial Pathogens

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Date: Tuesday, April 3, 2012

Time: 3:00 PM

Location: Marcus Nanotechnology Building

Abstract:
The Center for NanoBiotechnology Research (CNBR) at Alabama State University provides research infrastructure to perform nanobiotechnology research. The center facilitates integrated research in various areas including anti-viral and anti-bacterial nanomaterials development, sensor to diagnose bacterial pathogens, and immune regulating nanomaterials. We have synthesized silver coated carbon nanotubes using a unique microwave irradiation method leading to the development of nylon silver CNT nanocomposites with excellent broad-spectrum anti-bacterial activity. For pathogen detection, we have developed a label-free laser induced breakdown spectroscopy (LIBS) method for the detection of *Salmonella* which could detect *Salmonella* in broth and milk. In addition, a single stranded DNA probe attached to CNT was used to develop a biosensor for *Salmonella*. The sensor was able to detect specifically bacterial DNA and discriminate even single base pair mismatches.