

Seminar

on

Rapid Bionanomaterials Assembly and Bioassay Readout on a Chip

Dr. Shalini Gupta

Assistant Professor

Department of Chemical Engineering

Indian Institute of Technology Delhi

**496 Seminar Hall, THSTI
3.00 pm 12th June (Thursday) 2014**

Abstract :

The overarching goal of our research is to develop new biosensing platforms and functional materials that can be integrated into low cost diagnostic systems for effective health management. The presentation at THSTI is going to be an overview of my group's research work in the last 3 years. I shall demonstrate the various strategies undertaken by us to study biocolloidal interactions in electrical, optical, magnetic and fluid flow fields in such a way that the results are relevant to the biomedical field. For instance, colloidal particles which are known to display a remarkably broad range of physical and chemical properties can be used for developing new kinds of biosensors and biomaterials. I shall show how we use techniques such as microscopy (BF, Fluorescence, TIRF), spectroscopy (UV-Vis, EIS, SPR, FTIR), electric fields (EP and DEP) and magnetophoresis to achieve rapid and sensitive detection of disease-related pathogens, and protein and phospholipid biomarkers in analytes.

Brief Biosketch:

Shalini Gupta completed her B.Tech. in Chemical Engineering from IIT-BHU Varanasi in the year 2002. She received her Ph.D. in Chemical and Biomolecular Engineering at North Carolina State University in 2007. After being a post doc in the Materials Dept. in Imperial College London UK for one and a half years, she joined as an Assistant Professor in the Department of Chemical Engineering at IIT Delhi in December 2010. Shalini's research interests include directed assembly of colloidal particles for low-cost biosensors and novel materials fabrication. She is an active reviewer of many international journals and the recipient of the DPCC Young Faculty Incentive Fellowship.