OPTICS & PHOTONICS
UNIVERSITY OF NOTTINGHAM

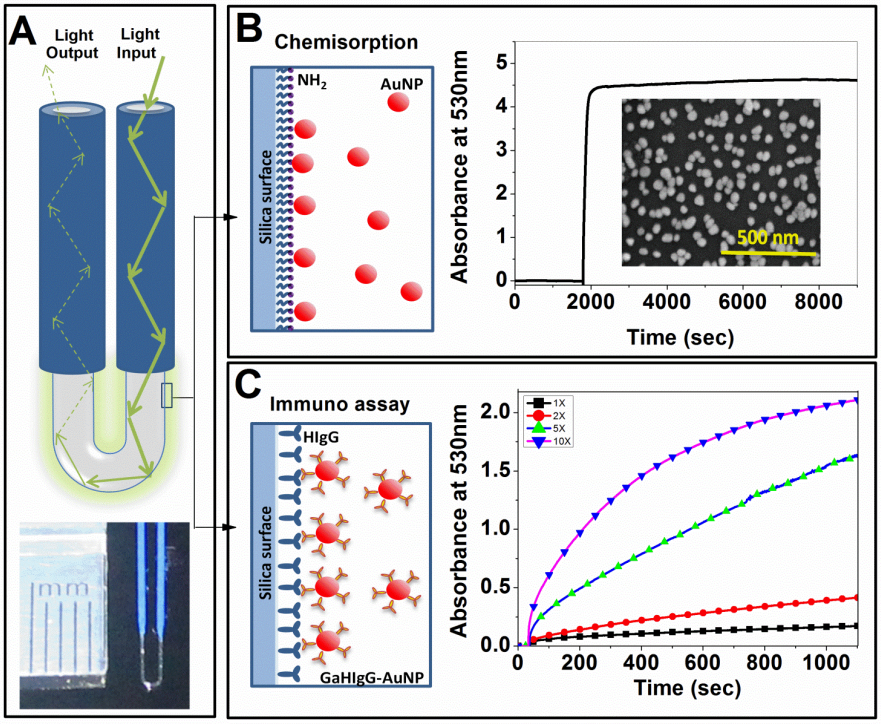
University of Nottingham
UK | CHINA | MALAYSIA

Optics and Photonics Group
Lunchtime Seminar

"Fiber optic chemical and biosensors: sensor design and device development"

V. V. Raghavendra Sai

Department of Applied Mechanics, IIT Madras, India



1:00pm Thursday 3rd May 2018
203 Tower Building
All Welcome

Abstract

http://optics.nottingham.ac.uk/wiki/Talks_2018

"Fiber optic chemical and biosensors: sensor design and device development"

V. V. Raghavendra Sai

1:00pm Thursday 3rd May 2018
203 Tower Building
All Welcome

Intrinsic fiber optic sensors are very attractive due to their high sensitivity to the local environment, which could be anything ranging from chemicals to body fluids. Plastic optical fibers (POF) have overcome some limitations of silica fibers such as fragility, difficulties with optical coupling, fiber sensor probe fabrication and polishing etc. to offer several advantages for applications in new fields. Unlike silica fibers, POF have larger core (diameter - 0.25 to 2 mm) and thinner (10 microns) cladding. When these fibers are decladded and bent very sharply, the light interactions with the external environment can be enhanced by at least an order. Hence any change in the environment can be monitored in terms of changes in light intensity in real time. This talk highlights our work on POF sensors can be exploited for several applications including liquid level sensors, chemical sensors and biosensors by means of simple optical intensity measurements. In addition to examples of POF probes as chemical sensors, our latest results on biosensing of few tens of biomolecules in 20 microlitre sample using gold nanoparticles as labels and a simple LED-photodetector set-up will be discussed.