

IIT Bombay is organising an Institute Lecture on Friday, May 20, 2011. The details are as follows:



Speaker: **Prof. P. N. Bartlett**
Professor of Electrochemistry
School of Chemistry
University of Southampton, UK

Title : **SERS on Nanostructured Surfaces and Application to DNA Detection and Discrimination**

Day & Date : Friday, May 20, 2011

Time : 5.15 p.m.

Venue : Main Auditorium, Victor Menezes Convention Centre

All are invited.

Abstract: In this lecture I will describe the work we have done over the last five years on the properties of metal surfaces, sculpted on the wavelength of light. These “metamaterials” are made using simple, easy to implement fabrication methods based on templated electrodeposition yet because of their shape they interact strongly with visible light showing strong structural colour as well as unusual magnetic, superconducting and wetting properties. In each case these effects arise because the length scale of the structure matches the characteristic physical length scale for the phenomenon – the wavelength of light, the magnetic domain wall width or the superconducting coherence length. Now that we begin to understand the interaction of light with these surfaces we are able to start to control and exploit the optical effects to make highly sensitive chemical and biochemical sensors. In my lecture I will describe how we make the surfaces use them to detect and characterise trace quantities, potentially down to a few thousand molecules, of DNA and how we might use this to produce simple DNA diagnostic devices for different genetic diseases.

About the Speaker: Prof. Phil Bartlett is Professor of Electrochemistry and Deputy Head of School for Research in the School of Chemistry at the University of Southampton. He received his undergraduate degree from Oxford and his PhD from Imperial College. He was a lecturer in Warwick and Professor in Physical Chemistry in Bath before moving to his present post. He is a co-founder and director of Nanotecture a company developing applications of templated nanomaterials synthesis in energy conversion and storage.

His current research interests include studies of modified electrode surfaces and molecular electrochemistry, the application of electrochemical methods to the templated fabrication of materials with regular nanostructures, and the design of electrodes for applications in bioelectrochemistry including biosensors and biofuel cells. He has published widely on electrochemistry and received research awards from the Royal Society of Chemistry, the Society of Chemical Industry, the International Society of Electrochemistry and the Electrochemical Society.