ICTS Seminar

Title   : Mathematical Immunology: an introduction

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Date   : Tuesday, April 4, 2017

Time   : 2:30 pm

Venue   : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract   : The immune system is one of the most fascinating and complex multi scale systems imaginable. The adaptive immune system of a vertebrate is a vast army of cells and molecules that cooperate to seek out, mark, bind to and destroy pathogens. The system continuously processes information from a large variety of self and foreign antigens and marshals the appropriate immune response. Stochastic modelling is ideally suited to immunology at many scales. For example:

- Cells live in a Brownian world. Their motion is partly directed and partly random.
- The battle between invading pathogens and the innate and adaptive immune systems is best described statistically.
- Cellular fate such as division, death or differentiation is regulated by molecular events between a receptor at the cell surface that interacts with extra-cellular ligands.

In this talk, I will provide an introduction to some of the mathematical models that our research group at at the University of Leeds has developed of immune processes at the molecular, cellular and population levels.