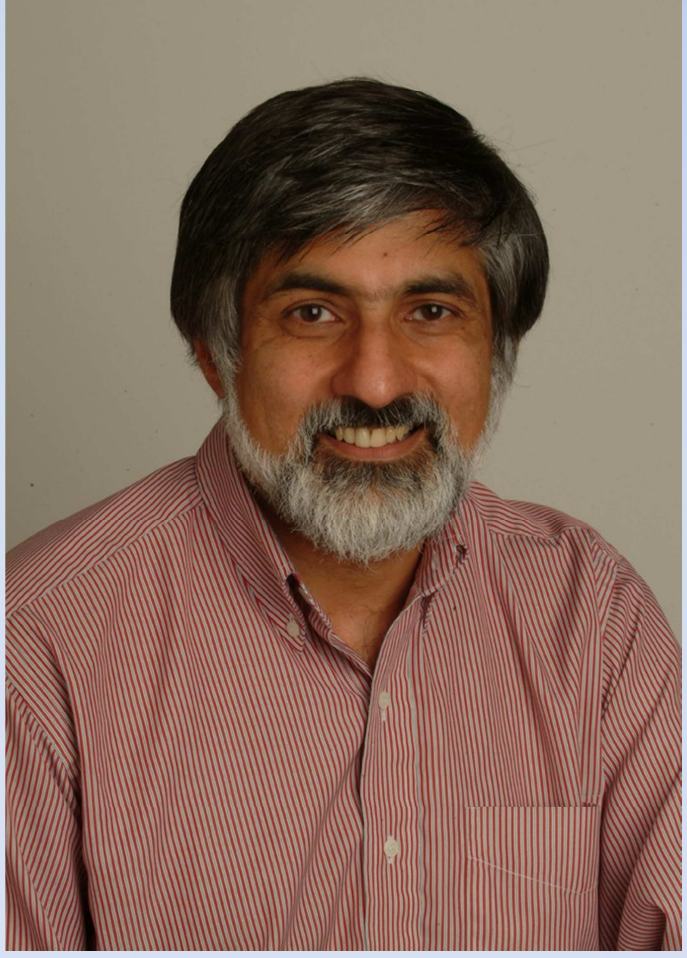
THE UNIVERSITY *of* NORTH CAROLINA
GREENSBORO
Department of Mathematics & Statistics

Helen Barton Lecture Series in Mathematical Sciences

Dr. Philip K. Maini

Wolfson Centre for Mathematical Biology
University of Oxford



Professor Philip K. Maini received his DPhil in 1985 under the supervision of Prof J.D. Murray, FRS. Currently he is a Professor and the Director of the Wolfson Centre for Mathematical Biology (CMB) at Oxford. He is currently on the editorial boards of a large number of journals, including serving as the Editor-in-Chief of the Bulletin of Mathematical Biology. He has also been an elected member of the Boards of the Society for Mathematical Biology (SMB) and European Society for Mathematical and Theoretical Biology (ESMBTB).

His present research projects include the modelling of avascular and vascular tumours, normal and abnormal wound healing, and a number of applications of mathematical modelling in pattern formation in early development, as well as the theoretical analysis of the mathematical models that arise in all these applications. He has over 300 publications in the field and has held visiting positions at a number of universities worldwide. He co-authored a Bellman Prize winning paper (1997), was awarded a Royal Society Leverhulme Trust Senior Research Fellowship for 2001-2 and a Royal Society-Wolfson Research Merit Award (2006-11). In 2009 he was awarded the LMS Naylor Prize and Lectureship.

For more information, please see: http://www.uncg.edu/math/talks/index.html or contact Dr. Maya Chhetri at maya@uncg.edu.

Mathematical Modelling for the Life and Medical Sciences

Abstract

This series of lectures will give an overview of the role and impact of mathematical modelling in the life and medical sciences. The models considered will range from coupled systems of partial differential equations, to hybrid models, to cell-based discrete models. Applications will include animal coat markings, digit formation, and cancer progression.

Lecture 1

Monday, March 24, 2014

Reception: Lounge, Petty 116, 3:30-4:00 PM
Lecture: Petty 219, 4:00 PM

How did the zebra get its stripes?

This lecture will present Turing's 1952 model for biological pattern formation and trace its effect and impact over the subsequent 60 years.

Lecture 2

Tuesday, March 25, 2014

Reception: Lounge, Petty 116, 3:30-4:00 PM
Lecture: Petty 219, 4:00 PM

Models of cancer development.

This lecture will present mathematical models for aspects of cancerous tumour growth and development.

Lecture 3

Wednesday, March 26, 2014

Reception: Lounge, Petty 116, 3:30-4:00 PM
Lecture: Petty 219, 4:00 PM

Modelling collective cell movement in biology.

This lecture will present a number of different modelling frameworks for collective cell motion with applications to epithelial cell movement and neural crest cell migration. It will be shown that, at least in the simplest settings, these apparently very different modelling approaches are all underpinned by a nonlinear diffusion equation.