Seminario on-line

Wednesday May 20, 2020 at 17:00
Hosted on: Zoom

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A Mathematical Dissection of Cancer Dynamics through Partial Differential Equations

Prof. Delitala introduces the seminar.

Abstract

A range of mathematical models have been used to gain a more in-depth theoretical understanding of different aspects of cancer dynamics. In this talk, deterministic, continuum models formulated as partial differential equations will be considered. The first part of the talk will focus on partial integro-differential equations modelling the eco-evolutionary dynamics of cancer cells in vascularised tumours. In the second part of the talk, attention will turn to models of avascular tumour growth that comprise coupled systems of nonlinear partial differential equations, which reflect the heterogeneous cellular composition of the tumour micro-environment. Analytical and numerical results summarising the behaviour of the solutions to the model equations will be presented and the biological insight generated by these results will be discussed.

Biography

Since March 2020, Tommaso Lorenzi has been Associate Professor at DISMA. He was educated at the Politecnico di Torino, where he was awarded a Ph.D. in Applied Mathematics in 2013. Upon completion of his Ph.D., he was FSMP Postdoctoral Fellow at the Sorbonne-Université (2013-2014), FMJH-LMH Postdoctoral Fellow at the École Normale Supérieure Paris-Saclay (2014-2015) and Research Fellow in Applied Mathematics at the University of St Andrews (2015-2020). Tommaso Lorenzi works in Mathematical Biology. The focus of his research is on the development, analysis and numerical simulation of deterministic models formulated as nonlinear partial differential equations and corresponding stochastic individual-based models. He collaborates interdisciplinary, with cell biologists, immunologists and evolutionary biologists.