



Deutscher Akademischer Austauschdienst
German Academic Exchange Service



Ghana-Bonn Seminar Series in Mathematical Biology

Friday 6th December 2024, 15:00 GMT / 16:00 CET

Professor Nick Monk

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Modelling the role of cell movement and transient signalling dynamics in balancing proliferation and differentiation

The development and maintenance of multicellular tissues depends on the regulated balance of cell proliferation and cell differentiation. This balance depends critically on intercellular signalling, that allows cells to coordinate their behaviour in space and time.

While this balance is typically strikingly robust during development, its dysregulation underlies many clinical conditions. Mathematical modelling provides a valuable tool for exploring how this balance depends on the dynamics of multiple processes that operate simultaneously in tissues. In this talk, I will use mathematical models of the Notch signalling pathway to illustrate how transient signalling dynamics can interact with cell movement to regulate the dynamics of tissue-level cellular decision-making.

Zoom: <https://zoom.us/j/5477912568?omn=97701567234>

Meeting ID: 547 791 2568



Nick Monk is Professor of Mathematics and Statistics at the University of Sheffield and a Humboldt Foundation German Research Chair in Mathematics and its Applications at the African Institute of Mathematical Sciences (AIMS). Prior to this, he received a PhD in theoretical quantum physics at the University of London and held positions at the Universities of Oxford, Cambridge, Nottingham and Sheffield. His research interests span the boundary of mathematics and the life sciences, with a particular focus on the use of differential equation models and dynamical systems to understand the basic principles of cellular behaviours in the development and physiology of animals and plants.

