

1010: The Maths of Biology

Organizers: Jose A. Carrillo, Mats Gyllenberg, Torbjörn Lundh, Philip Maini, Roeland Merks and Santiago Schnell.

	Morphogenesis Monday	Disease Tuesday	Wednesday 10/10 The very first Mathematical Biology Day		Flocking Thursday	Clinical Friday
Venue	Wallenbergsalen, Institut Mittag-Leffler	Wallenbergsalen, Institut Mittag-Leffler	Beijersalen, The Royal Swedish Academy of Sciences		Wallenbergsalen, Institut Mittag-Leffler	Wallenbergsalen, Institut Mittag-Leffler
09:00-09:45	Shigeru Kondo (Osaka University) <i>Turing mechanism for 2D pattern formation, and a proposal of another principle for 3D shape formation</i>	Julia Gog (University of Cambridge) <i>Some topics in infectious disease modelling</i>	09:00-09:05	Introduction by Torbjörn Lundh (ESMTB and University of Gothenburg/Chalmers) and Santiago Schnell (Society for Mathematical Biology and University of Michigan)	Charlotte Hemelrijk (University of Groningen) <i>Self-organised motion and collective escape in huge flocks of starlings</i>	Santiago Schnell (University of Michigan) <i>How to design an optimal sensor network for the unfolded protein response</i>
			09:05-09:45	Samuli Siltanen (University of Helsinki) <i>The magic of math: X-ray vision</i>		
09:50-10:35	Qing Nie (University of California, Irvine) <i>Data-driven multiscale modeling of cell fate dynamics</i>	Tom Britton (Stockholm University) <i>Statistical challenges when analysing emerging epidemic outbreaks</i>	Jacob G Scott (Cleveland Clinic) and Philip Gerlee (University of Gothenburg/Chalmers) <i>Using game theory to understand the rules of tumour evolution</i>		Andrew Adamatzky (UWE Bristol) <i>Computing with slime mould</i>	Hesso Farhan (University of Oslo) <i>Role of the Crosstalk of Bio-synthetic and Degradative Cellular Processes in Cell Migration and Proliferation</i>
10:35-11:00	Coffee	Coffee	Coffee		Coffee	Coffee
11:00-11:45	Sophie Hecht (Imperial College London) <i>Incompressible Limit of a Continuum Model of Tissue Growth with Segregation for Two Cell Populations</i>	Carlos Castillo-Chavez (Arizona State University) TBA	Michael Bonsall (University of Oxford) <i>Scaling the heights of biology with maths</i>		Raluca Eftimie (University of Dundee) <i>Pattern formation in animal aggregations: the effect of animal communication in homogeneous/inhomogeneous environments</i>	Max Ortiz Catalan (University of Gothenburg/Chalmers) <i>Neural control of bionic limbs and neurorehabilitation of pain</i>
11:50-12:35	Arturo Araujo (Braintree) <i>First Principles of Prostate to Bone Metastasis</i>	Odo Diekmann (Utrecht University) <i>Waning and boosting: on the dynamics of immune status</i>	Lunch		Alexandria Volkening (Mathematical Biosciences Institute) <i>Modeling stripe and mutated pattern formation on the skin of zebrafish</i>	Torbjörn Lundh (University of Gothenburg/Chalmers) <i>From surgery to Laplace and back via some bloody examples</i>
12:35-14:00	Lunch	Lunch	13:30-14:15	Julia Gog (University of Cambridge) <i>Maths vs Disease</i>	Lunch	End of week-remarks
14:00-14:45	Henrik Jönsson (University of Cambridge) <i>On the integration of morphogens and mechanical stresses for generating plant shapes</i>	Frank Ball (University of Nottingham) <i>Epidemics on networks</i>	14:20-15:05	David Sumpter (Uppsala University) <i>From fish to football: what mathematics can teach us about teamwork</i>	Markus Schmidtchen (Imperial College London) <i>Attractive-repulsive models in collective behavior models and applications</i>	
14:50-15:35	James Glazier (Indiana University Bloomington) <i>Multiscale Modeling of Development and Developmental Diseases</i>	Pieter Trapman (Stockholm University) <i>The duration of SIR epidemics on networks</i>			David Sumpter (Uppsala University) <i>A Turing test for fish: tuning models of collective motion across species</i>	
15:50-16:35	Dagmar Iber (ETH Zürich) TBA	Jacob G Scott (Cleveland Clinic) <i>Next steps in evolutionary cancer therapy: models, parameters and timescales.</i>	19:00	Conference dinner for workshop participants (at Institut Mittag-Leffler)	Maria-Rita D'Orsogna (California State University, Northridge) <i>Swarms in two and three dimensions: patterns, stability and collapse</i>	