

Modelling Diffusive Systems 2023: Theory & Biological Applications (MoDiS 2023)

Monday 11 – Friday 15 September 2023

The programme is subject to change. All times are British Summer Time (BST).

MONDAY 11 SEPTEMBER 2023	
09.00 – 09.30	Registration & Refreshments
09.30 – 10.00	Welcome & Housekeeping
10.00 – 10.30	Christina Kuttler , Technische Universität München <i>Who is there, when, where and why? How diffusion helps bacteria to learn more about their environment</i>
10.30 – 11.00	Refreshments
11.30 – 12.00	Ariane Trescases , Cnrs (Toulouse) <i>Cross diffusive aggregation and local sensing</i>
12.00 – 12.30	Discussion
12.30 – 14.00	Lunch & Discussion
14.00 – 14.30	Mariya Ptashnyk , Heriot-Watt University <i>Multiscale analysis for cross-diffusion models in environments with periodic and random microstructures</i>
14.30 – 15.00	Antoine Zurek , Université de Technologies de Compiègne <i>Design and analysis of finite volume schemes for some cross-diffusion systems</i>
15.00 – 15.30	Refreshments
15.30 – 16.00	Discussion
16.00 – 17.30	Welcome Reception & Posters

TUESDAY 12 SEPTEMBER 2023	
10.00 – 10.30	Giancarlo Consolo , University of Messina <i>Hyperbolic reaction-transport equations in dryland ecological modeling</i>
10.30 – 11.00	Refreshments
11.30 – 12.00	Philip Pearce , University College London <i>Pattern formation by living droplets in chemoattractant gradients</i>
12.00 – 12.30	Discussion
12.30 – 14.00	Lunch & Discussion
14.00 – 14.30	Nikolaos Sfakianakis , University of St Andrews <i>A mathematical path to a hybrid 3-D multi-organ cancer invasion framework and virtual patient environment</i>
14.30 – 15.00	Giuseppe Pontrelli , IAC-CNR <i>Mass diffusion in non-homogenous materials with application to drug delivery</i>
15.00 – 15.30	Refreshments
15.30 – 16.00	Discussion
18.00 – 19.30	Public Lecture, hosted in G.03 (ground floor) Jonathan Sherratt , Heriot-Watt University <i>Diffusion in Deserts: Explaining Patterned Vegetation</i>

WEDNESDAY 13 SEPTEMBER 2023	
09.30 – 10.00	Jonathan Potts , University of Sheffield <i>Nonlocal advection-diffusion models for modelling organism movement and space use</i>
10.00 – 10.30	Ricardo Martínez-García , Center for Advanced Systems Understanding (CASUS) <i>The effect of space-dependent movement on critical patch size</i>
10.30 – 11.00	Refreshments
11.30 – 12.00	Ulrike Feudel , ICBM, Carl von Ossietzky University Oldenburg <i>Metaecosystems – network approaches in population dynamics</i>
12.00 – 12.30	Discussion
12.30	Free Afternoon & Social Activities

THURSDAY 14 SEPTEMBER 2023	
09.30 – 10.00	Pierre Degond , CNRS, Institut de Mathématiques de Toulouse <i>Geometry and topology in collective dynamics models</i>
10.00 – 10.30	Laura Kanzler , CEREMADE - Université Paris-Dauphine <i>One-dimensional short-range nearest-neighbour interaction and its nonlinear diffusion limit</i>
10.30 – 11.00	Refreshments
11.30 – 12.00	Marie-Therese Wolfram , University of Warwick <i>Active Crowds</i>
12.00 – 12.30	Discussion
12.30 – 14.00	Lunch & Discussion
14.00 – 14.30	Martina Chirilus-Bruckner , Leiden University <i>Dynamics of exotic front solutions in reaction-diffusion systems</i>
14.30 – 15.00	Hannes Uecker , Carl von Ossietzky Universität Oldenburg <i>Numerical Bifurcation Analysis for differential geometric PDEs</i>
15.00 – 15.30	Refreshments
15.30 – 16.00	Discussion
16.00 – 17.00	Mentoring
19.00	Workshop Dinner, hosted at Blonde Restaurant <i>75 St. Leonard's Street, Edinburgh EH8 7QR</i>

FRIDAY 15 SEPTEMBER 2023	
09.30 – 10.00	Andrew Krause , Durham University <i>Pattern Formation via Blackboards and Web Browsers</i>
10.00 – 10.30	Lukas Eigentler , University of Bielefeld <i>Pattern migration (or not?) of dryland vegetation stripes</i>
10.30 – 11.00	Refreshments
11.30 – 12.00	Frits Veerman , University of Leiden <i>Mechanochemical pattern formation: far-from-equilibrium patterns on a deforming surface</i>
12.00 – 12.30	Discussion
12.30	Lunch & Closing