M.Sc Mathematical Modelling and Scientific Computing
Dissertation Titles 2016-17

• Iterative Solution of Evolutionary PDEs via All-At-Once Methods
• A Heterogeneous Network Wilson-Cowan Model with Discrete Delays
• Automatic Discovery of Governing Equations from Data
• Smooth Random ODEs and Stratonovich SDEs
• Finite Volume Element Methods for Three-Field Saddle-Point Problems
• Expander Compressed Sensing with Multiple Vectors
• Predator-Prey-Subsidy Dynamics on Networks with Temporal and Spatial Obstructions
• Spatiotemporal Analysis of Air-Travel Networks
• Accelerating Optimisation Algorithms
• Industry Agglomeration Drivers: A Network Based Approach
• Turing Instabilities in Reaction-Diffusion Systems on Networks
• Reaction-Diffusion Equations in the Plane and on the Sphere
• Integer Programming Models for Low-Rank Boolean Matrix Approximation
• Subproblem Solutions in Cubic Regularisation Methods
• Network-Based Approaches for Authorship Attribution
• ODE Models for the “Real” Butterfly Effect
• All-At-Once Methods for ODE Initial Value Problems
• Mathematical Modelling of Microstructured Optical Fibres
• Magnetocapillary Interactions
• Applause Dynamics in Crowds
• Modelling Cell Invasion in the Neural Crest
• Computing and Controlling Transitions in Multistable Partial Differential Equations
• Unconstraining Demand with Gaussian Processes for Revenue Management
• Mean Exit Time of Crowded Robots Modelled by Velocity Jump Processes
• Population Dynamics and Viral Videos
• Using MSPIN as a Solver for Discretized Nonlinear PDEs
• An Analysis of Production Networks
• Network Decomposition Methods for Revenue Management