

Quantum and Kinetic Problems: Modeling, Analysis, Numerics and Applications

Workshop 3 on Emergent Phenomena – from Kinetic Models to Social Hydrodynamics
(16–20 December 2019)

Name & Affiliation	Talk Title
Giacomo Albi Università degli Studi di Verona, Italy	Kinetic approximation of optimal control problems for collective dynamics (Slides)
Gil Ariel Bar Ilan University, Israel	Bacterial swarming: experiments and modelling
Weizhu Bao National University of Singapore, Singapore	Collective dynamics of quantized vortices in superfluidity and superconductivity
Yongyong Cai Beijing Normal University, China	A stable scheme for a 2D dynamic Q-tensor model of nematic liquid crystals
Zhenning Cai National University of Singapore, Singapore	Regularized 13-moment equations for inverse power law models
José Antonio Carrillo Imperial College London, UK	Consensus based models and applications to global optimization (Video)
Li Chen Universität Mannheim, Germany	Analysis on the model hierarchy for mean field interacting particle system via non Lipschitz and velocity dependent force (Slides) (Video)
Young-Pil Choi Yonsei University, Korea	A hydrodynamic model for synchronization phenomena
Giacomo Dimarco University of Ferrara, Italy	The Aw-Rascle traffic model: Enskog-type kinetic derivation and generalisations
Gadi Fibich Tel Aviv University, Israel	Diffusion of new products in social networks (Video)
Diogo Gomes King Abdullah University of Science and Technology, Saudi Arabia	Symbolic computations in PDE
Seung-Yeal Ha Seoul National University, Korea	Emergent behaviors of Lohe tensor flocks (Video)
Jan Haskovec King Abdullah University of Science and Technology, Saudi Arabia	Rigorous continuum limit for the discrete network formation problem (Slides) (Video)

Name & Affiliation	Talk Title
Michael Herty RWTH Aachen University, Germany	Models for data propagation in large-scale computer systems (Slides)
Wei Jiang Wuhan University, China	Phase field approach for simulating solid-state dewetting problems
Bo Lin National University of Singapore, Singapore	Computing committor functions for the study of rare events using deep learning
Lorenzo Pareschi University of Ferrara, Italy	Multifidelity Monte Carlo methods for kinetic equations with uncertainties (Video)
Eitan Tadmor University of Maryland, USA	Distinguished Visitor Lecture Series: Emergent behavior in collective dynamics (Video)
Changhui Tan University of South Carolina, USA	Eulerian dynamics in multi-dimensions with radial symmetry (Slides)
Dengshan Wang Beijing Information Science and Technology University, China	Evolution of initial discontinuity for the defocusing complex modified KdV equation (Slides) (Video)
Marie-Therese Wolfram University of Warwick, UK	Boltzmann and Fokker-Planck equations modelling the Elo rating system with learning effects
Tong Yang City University of Hong Kong, Hong Kong	The Vlasov-Nordström-Fokker-Planck system (Slides) (Video)
Yao Yao Georgia Institute of Technology, USA	Uniqueness and non-uniqueness of steady states of aggregation-diffusion equation (Slides)
Mattia Zanella University of Pavia, Italy	Uncertainty quantification and control for collective phenomena
Teng Zhang National University of Singapore, Singapore	Numerical simulations of vortex interactions in the nonlinear Schrödinger equation with periodic boundary conditions