

3rd IMA Conference on Dense Granular Flows

Monday 1 July - Thursday 4 July
Centre for Mathematical Sciences, Cambridge

Monday 1 July 2019 - Grains and Fluids

10:00 - 10:50	Registration Tea/Coffee
10:50 - 11:00	Welcome
11:00 - 12:00	Keynote Talk - Extended continuum methods for dry and wet granular flow modelling Professor Ken Kamrin (Massachusetts Institute of Technology)
12:00 - 12:20	Saltation to collisional transport in wind-blown sand Alexandre Valance (University of Rennes)
12:20 - 12:40	DEM simulations and continuum modeling of size-segregation in bedload sediment transport Rémi Chassagne (University of Grenoble Alpes)
12:40 - 13:40	Lunch
13:40 - 14:00	Transport coefficients of granular suspensions at moderate densities Vicente Garzó (University of Extremadura)
14:00 - 14:20	Interparticle friction leads to non-monotonic flow curves and hysteresis in viscous suspensions Hugo Perrin (IUSTI - UMR 7343 CNRS)
14:20 - 14:40	Dune-dune repulsion Karol Bacik (University of Cambridge)
14:40 - 15:00	Granular collapse: from dry to immersed flows Laurent Lacaze (University of Toulouse)
15:20 - 15:30	Tea/Coffee Break
15:30 - 15:50	Unsaturated wet granular flows Abdoulaye Fall (Navier Laboratory)
15:50 - 16:10	Investigation of dynamics of grain-fluid mixture flows by coupling mixture theory with dilatancy law Xiannan Meng (University of Manchester)
16:10 - 16:30	Flow of buoyant granular material along a free surface Herbert Huppert (University of Cambridge)
16:30 - 16:50	Dense granular flow morphologies and discontinuous shear thickening Deren Ozturk (Swansea University)
16:50	Drinks reception - Poster preview

Tuesday 2 July 2019 - Segregation and avalanches

09:00 – 09:20	Kinetic theory for dense rings around biaxial ellipsoids Shribharath B (Indian Institute of Technology Kanpur)
09:20 – 09:40	Particle breakage and segregation in dry granular flows Jiaxin Zhang (University of Nottingham)
09:40 – 10:00	Modeling grain size segregation using a Eulerian-Eulerian two-phase flow model Hugo Rousseau (University of Grenoble Alpes)
10:00 – 10:20	Granular segregation behavior in a double-walled rotating drum Shu-San Hsiau (National Central University)
10:20 – 11:00	Tea/Coffee Break
11:00 – 12:00	Keynote Talk - Hysteresis in granular avalanches Chris Johnson (University of Manchester)
12:00 – 12:20	New segregation patterns in granular flows Aurélien Neveu (University of Rennes)
12:20 – 12:40	Double segregation in dense, inhomogeneous, granular shearing flows Michele Larcher (Free University of Bozen-Bolzano)
12:40 – 14:00	Lunch
14:00 – 15:20	Poster Session
15:20 – 15:40	Dense granular flow down an inclined plane V. Kumaran (Indian Institute of Science)
15:40 – 16:00	High speed confined granular flows down inclines Renaud Delannay (University of Rennes)
16:00 – 16:40	Tea/Coffee Break
16:40 – 17:00	Lateral confinement of granular chute flows: sidewall effects, sliding velocity and rheology Patrick Richard (IFSTTAR, MAST)
17:00 – 17:20	Modelling dry granular flows over topography Jonny Tsang (University of Cambridge)
17:20 – 17:40	Experimental and numerical modelling of dry, uniform and unsteady granular avalanches Anna Prati (Free University of Bozen-Bolzano)
17:40 – 18:00	Granular flows over rigid, inclined bases that are either spring-supported or externally vibrated Prasad Sonar (Indian Institute of Technology)

Wednesday 3 July 2019 - Rheology

09:00 – 09:20	Application of the compressible I -dependent rheology to chute and shear flow instabilities James Fannon (University of Limerick)
09:20 – 09:40	Evolving conditions in granular matters: from numerical DEM results to constitutive modelling Dalila Vescovi (Polytechnic University of Milan)
09:40 – 10:00	Well-posed continuum equations for granular flow Thomas Barker (University of Manchester)
10:00 – 10:20	Modelling granular media with dynamical density functional theory Timothy Hurst (The Maxwell Institute Graduate School in Analysis and its Applications)
10:20 – 11:00	Tea/Coffee Break
11:00 – 12:00	Keynote Talk - Rheology of coated granular flows and its upscaling to complex natural and industrial mixtures Kimberley Hill (University of Minnesota)
12:00 – 12:20	A new perspective on granular flow analysis in rotating drum Angelica Maria Giovanna Arseni (University of Naples Federico II)
12:20 – 12:40	Constitutive relations for compressible granular flow in the inertial regime David Schaeffer (Duke University)
12:40 – 14:00	Lunch
14:00 – 14:20	Dissipation potentials from elastic collapse Joe Goddard (University of California)
14:20 – 14:40	Confined dense granular flows: wall friction weakening and shear localization Riccardo Artoni (IFSTTAR, MAST)
14:40 – 15:00	Shear banding instability in arbitrarily inelastic dense granular shear flows Priyanka Shukla (Indian Institute of Technology Madras)
15:00 – 15:20	A look inside a shear band: intermittency of the granular flow Axelle Amon (University of Rennes)
15:20 – 16:00	Tea/Coffee Break
16:00 – 16:20	Packings and dense flows for a controlled-cohesion granular material Maxime Nicolas (Aix-Marseille University)
16:20 – 16:40	Local rheology relation with variable yield stress across boundary-driven, gravity-driven, and fluid-driven dense and dilute granular flow Thomas Pähz (Zhejiang University)
16:40 – 17:00	Statistical and continuum modeling of dense granular flows at the flow-arrest transition Ishan Srivastava (Sandia National Laboratories)
19:30	Conference dinner

Thursday 4 July 2019 - Granular physics

09:00 – 09:20	Viscorotational shear instability in astrophysical dense granular flows Alexander Tevzadze (Tbilisi State University)
09:20 – 09:40	Granular flow modeling of robot-terrain interactions in reduced gravity Amin Haeri (Concordia University)
09:40 – 10:00	Complex thermal memory in granular dynamics Francisco Vega Reyes (University of Extremadura)
10:00 – 10:20	Force chains and networks: wet suspensions through dry granular Jin Sun (University of Edinburgh)
10:20 – 11:00	Tea/Coffee Break
11:00 – 12:00	Keynote Talk - Why do large grains rise in segregating granular flows Lydie Staron (Jean le Rond d'Alembert Institute)
12:00 – 12:20	Moment-based modelling of d-dimensional granular gases Vinay Kumar Gupta (University of Warwick, SRM University)
12:20 – 12:40	Thermal convection in granular gas of hard disk, with dissipative lateral walls under zero gravity Alvaro Rodriguez-Rivas (University of Extremadura)
12:40 – 14:00	Lunch
14:00 – 14:20	Kinetic theory for a dense, inclined, granular flow over an erodible bed Jim Jenkins (Cornell University)
14:20 – 14:40	Extended kinetic theory for collisional shearing over and within an inclined, erodible bed Diego Berzi (Polytechnic University of Milan)
14:40 – 15:00	Force networks in mono- and bi-disperse dry granular flows Amalia Thomas (University of Cambridge)
15:00 – 15:30	Tea/Coffee Break