Workshop One: Old and New Challenges in Fluid Equations: Regularity, Singularity and Stability

(16–20 December 2024)

ORGANIZING COMMITTEE

Co-chairs

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Venue

IMS Executive Seminar Room
Bock S17, Level 3
10 Lower Kent Ridge Rd Singapore 119076

For more information: https://ims.nus.edu.sg/events/singularities-in-fluids-and-general-relativity/

Singularities in Fluids and General Relativity

Workshop One: Old and New Challenges in Fluid Equations: Regularity, Singularity and Stability

(16–20 December 2024)

Monday, 16 Dec 2024		
Time	**Title**	**Speaker**
0900–0930	Registration	
0930–1020	On the Prandtl's Boundary Layer Theory for Steady Sink-Type Flows	Zhouping Xin *The Chinese University of Hong Kong, Hong Kong SAR*
1020–1110	Local Rigidity of the Couette Flow for the Stationary Triple-deck Equations	Yasunori Maekawa *Kyoto University, Japan*
1110–1140	Tea Break	
1140–1230	On the Rate of Vortex Stretching for Axisymmetric Euler Flows Without Swirl	In-Jee Jeong *Seoul National University, S. Korea*
1230–1400	Lunch Break	
1400–1450	Kinetic Shock Profiles for the Landau Equation	Dallas Albritton *University of Wisconsin–Madison, USA*
1450–1540	Non Local Conservation Laws with BV Kernel	Gianluca Crippa *University of Basel, Switzerland*
1540–1610	Tea Break	
1610–1700	Flexibility of Two-Dimensional Euler Flows	Maria Colombo *École Polytechnique Fédérale de Lausanne, Switzerland*

Tuesday, 17 Dec 2024		
Time	**Title**	**Speaker**
0915–0930	Registration	
0930–1020	Stability of Small BV Solutions to Compressible Euler in a Class of Vanishing Physical Viscosity Limits	Moon-Jin Kang *KAIST, S.Korea*
1020–1110	Long Time Behaviour of Open Fluid Systems	Eduard Feireisl *Institute of Mathematics CAS, Czech Republic*
1110–1140	Group Photo & Tea Break	
1140–1230	Free Boundary Dynamics of an Elastic Filament in 3D Stokes Flow	Laurel Ohm *University of Wisconsin–Madison, USA*
1230–1400	**Lunch Reception at IMS**	

Tuesday, 17 Dec 2024		
Time	**Title**	**Speaker**
1400–1450	Effectiveness of Littlewood-Paley theory in the Study of Turbulence and Machine Learning	Tsuyoshi Yoneda *Hitotsubashi University, Japan*
1450–1540	Stability of Gravitational Collapse	Matthew Schrecker *University of Bath, UK*
1540–1610	Tea Break	
1610–1700	*Short talks by Junior Researchers*	
	Low Regularity Ill-posedness for Elastic Waves and for MHD system in 3D and 2D	Haoyang Chen *National University of Singapore, Singapore*
	Low-Regularity Local Well-Posedness for the Elastic Wave System	Sifan Yu *National University of Singapore, Singapore*

Wednesday, 18 Dec 2024		
Time	**Title**	**Speaker**
0915–0930	Registration	
0930–1020	Vacuum Free Boundary Problems in Gas Dynamics	Juhi Jang *University of Southern California, USA*
1020–1110	Potentially Singular Behavior of 3D Incompressible Navier-Stokes Equations	Thomas Hou *California Institute of Technology, USA*
1110–1140	Tea Break	
1140–1230	Finite Time Singularities for Incompressible Fluids	Diego Córdoba *Institute of Mathematical Sciences (ICMAT), Spain*
1230–1350	Lunch Break	
1400	***Social Activity*** **Gardens By the Bay** 1-way transfer is provided from IMS.	
1830	**Dinner @ Long Beach Seafood Robertson Quay**	

Thursday, 19 Dec 2024		
Time	**Title**	**Speaker**
0915–0930	Registration	
0930–1020	Stable Regime Singularity for the Muskat Problem	Andrej Zlatos *University of California, San Diego, USA*

Thursday, 19 Dec 2024		
Time	**Title**	**Speaker**
1020–1110	Reversal in the Stationary Prandtl Equations	Sameer Iyer *University of California, Davis, USA*
1110–1140	Tea Break	
1140–1230	Stability of Stratified Density under Incompressible Flows	Jaemin Park *Yonsei University, S. Korea*
1230–1400	Lunch Break	
1400–1450	Existence of Non Convex V-states	Javier Gomez-Serrano *Brown University, USA*
1450–1540	Stationary Self-similar Profiles for the Two-dimensional Inviscid Boussinesq Equations	Ken Abe *Osaka Metropolitan University, Japan*
1540–1610	Tea Break	
1610–1700	*Short talks by junior researchers*	
	Cusp formation of vortex patches	Min Jun Jo *Duke University, USA*
	Low Mach Number Limit of Non-isentropic Ideal MHD with a Perfectly Conducting Boundary	Junyan Zhang *National University of Singapore, Singapore*

Friday, 20 Dec 2024		
Time	**Title**	**Speaker**
0915–0930	Registration	
0930–1020	Non-radial Implosion for Compressible Euler, Navier-Stokes and Defocusing NLS in T^d and R^d	Jia Shi *Massachusetts Institute of Technology, USA*
1020–1210	*Short talks by junior researchers*	
	On the Wellposedness of alpha-SQG Equation in a Half-plane	Junha Kim *Ajou University S.Korea*
	Onsager's conjecture for the SQG equation	Shi Zhuo Looi *California Institute of Technology, USA*