

# Workshop Two: Black Holes, Naked Singularities, Shocks and Implosions

(6–10 January 2025)

## ORGANIZING COMMITTEE

### Co-chairs

Xinliang An

*National University of Singapore*

Mihalis Dafermos

*University of Cambridge and Princeton University*

Juhi Jang

*University of South California*

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*National University of Singapore*



### Venue

6–8 January 2025

IMS Executive Seminar  
Room

9–10 January 2025

LT34

Block 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 Two: Black Holes, Naked Singularities, Shocks and Implosions**  
**(6–10 January 2025)**

Monday, 06 Jan 2025		
Time	Title	Speaker
0900–0930	Registration	
0930–1020	TBA	Jeremie Szeftel <i>Sorbonne University, France</i>
1020–1110	Observational Signatures for Extremal Black Holes	Stefanos Aretakis <i>University of Toronto, Canada</i>
1110–1140	Tea Break	
1140–1230	Shock Formation for the Einstein—Euler System	John Anderson <i>Stanford University, USA</i>
1230–1400	Lunch Break	
1400–1450	TBA	Siyuan Ma <i>Academy of Mathematics and Systems Science, CAS, China</i>
1450–1540	Global Stability of Minkowski Spacetime with Minimal and Borderline Decay	Dawei Shen <i>Columbia University, USA</i>
Tuesday, 07 Jan 2025		
Time	Title	Speaker
0915–0930	Registration	
0930–1020	Late Time Tail of Waves on Dynamic Asymptotically Flat Spacetimes, Part I	Jonathan Luk <i>Stanford University, USA</i>
1020–1110	Late Time Tail of Waves on Dynamic Asymptotically Flat Spacetimes, Part II	Sung-Jin Oh <i>University of California, Berkeley, USA</i>
1110–1140	Group Photo & Tea Break	
1140–1230	TBA	Dejan Gajic <i>Universität Leipzig, Germany</i>
1230–1400	<b>Lunch Reception at IMS</b>	
1400–1450	Singularity Structure of FLRW Spacetimes at Low Regularities	Jan Sbierski <i>The University of Edinburgh, UK</i>

Tuesday, 07 Jan 2025		
Time	Title	Speaker
1450–1540	Energy Estimates for Shock Formation to the Full 3D Compressible Euler System without Assuming Additional Regularity on the Vorticity and Entropy	Leonardo Abbrescia <i>Georgia Institute of Technology, USA</i>
1540–1610	Tea Break	
1610–1700	Zero Viscosity Limit of 1D Viscous Conservation Laws at the Point of First Shock Formation	Sanchit Chatuverdi <i>Stanford University, USA</i>
Wednesday, 08 Jan 2025		
Time	Title	Speaker
0915–0930	Registration	
0930–1020	TBA	Joachim Kreiger <i>École Polytechnique Fédérale de Lausanne, Switzerland</i>
1020–1110	On Black Hole Formation	Xinliang An <i>National University of Singapore, Singapore</i>
1110–1400	Lunch Break	
1400–1500	<i>Colloquium talk by Fields Medalist on Probability</i> From fields to random geometric structures and back	Wendelin Werner <i>University of Cambridge, UK</i>
1500–1530	Tea Break	
1530–1630	<i>Colloquium talk</i> TBA	Jeremie Szeftel <i>Sorbonne University, France</i>
Thursday, 09 Jan 2025		
Time	Title	Speaker
0915–0930	Registration	
0930–1020	Localised Big Bang Stability	Todd Oliynyk <i>Monash University, Australia</i>
1020–1110	Weak Turbulence on Schwarzschild-AdS Spacetime	Georgios Moschidis <i>École Polytechnique Fédérale de Lausanne, Switzerland</i>

Thursday, 09 Jan 2025		
Time	Title	Speaker
1110–1140	Tea Break	
1140–1230	BKL Bounces Outside Homogeneity	Warren Li <i>Princeton University, USA</i>
1230–1400	Lunch Break	
1400	<p><b><u>Social Activity</u></b></p> <p><b>Sungei Buloh Wetland Reserve</b></p> <p>1-way transfer from IMS to Sungei Buloh Wetland Reserve. Pick-up time is 2 pm.</p> <p>Explore the wetlands and mangroves of Singapore’s first ASEAN Heritage Park, which is rich in biodiversity and serves as an important site for migratory birds.</p> <p><b>Dinner @ Long Beach Seafood Robertson Quay</b></p> <p>1-way transfer from Sungei Buloh Wetland Reserve to dinner location. Pick-up time is 6 pm.</p> <p>Register: <a href="https://forms.office.com/r/56BCmgQ05p">https://forms.office.com/r/56BCmgQ05p</a></p>	
Friday, 10 Jan 2025		
Time	Title	Speaker
0915–0930	Registration	
0930–1020	A Localized Construction of Kasner-like Singularities	Greg Fournodavlos <i>University of Crete, Greece</i>
1020–1110	Gravitational Waves Perturbations to Perfect Fluid Naked Singularities	Junbin Li <i>Sun Yat-sen University, China</i>
1110–1140	Tea Break	
1140–1230	TBA	Martin Taylor <i>Imperial College London, UK</i>

This schedule is accurate as of 18 Dec 2024 and is subjected to changes.