

Mathematical Foundations & Methodologies for Artificial Intelligence and Data-Driven Scientific Computing

Workshop on Data-Drive Scientific Computing

(11 Aug 2026–15 Aug 2026)



ORGANIZING COMMITTEE

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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/mathfoundationsai>

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(11 Aug 2026–15 Aug 2026)

Tuesday, 11 August 2026

Time	Title	Speaker
0900–0930	Registration	
0930–1030	Foundation Neural Operators and Diffusion Models over Function Spaces	Lu Lu <i>Yale University, USA</i>
1030–1045	Coffee Break	
1045–1145	Efficient Sampling, Optimization, and Targeted Diffusion Generation for Physical AI	Yueming Lyu <i>A*STAR, Singapore</i>
1145–1330	Lunch Break	
1330–1430	Foundation Models for Physics: From Transformers to Kinetic and Self-Warping Architectures	Maarten de Hoop <i>Rice University, USA</i>
1430–1530	In-Context Learning in Scientific Computing	Yulong Lu <i>University of Minnesota, USA</i>
1530–1600	Coffee Break	
1600–1700	When Does Scientific AI Actually Use Physics? From Causal Mechanism Audits to Executable Solver Semantics	Xinyu Yang <i>NUS, Singapore</i>

Wednesday, 12 August 2026

Time	Title	Speaker
0915–0930	Registration	
0930–1030	Deep Learning for Reynolds-Averaged Navier-Stokes Simulations of Turbulent Flows	Daniel Dehtyriov <i>University of Oxford, UK</i>
1030–1045	Coffee Break	
1045–1145		Yang Xiang <i>HKUST, Hong Kong SAR</i>
1145–1330	Lunch Break	
1330–1430	Preconditioned One-step Generative Modelling for Bayesian Inverse Problems	Zhongjian Wang <i>NTU, Singapore</i>
1430–1530	Learning Mesoscopic Dynamics	Qianxiao Li <i>NUS, Singapore</i>
1530–1600	Coffee Break	

Wednesday, 12 August 2026		
Time	Title	Speaker
1600–1700	Flow-based Generative Models for Amortized Bayesian Inference in Regression and Inverse PDE Problems	Xuhui Meng <i>HUST, China</i>
Thursday, 13 August 2026		
Time	Title	Speaker
0915–0930	Registration	
0930–1030		Pin Zhang <i>NUS, Singapore</i>
1030–1045	Group Photo & Coffee Break	
1045–1145		Hongkai Zhao <i>Duke University, USA</i>
1145–1330	Lunch Break	
1330–1430		Liu Yang <i>NUS, Singapore</i>
1430–1530	Curvature-Aware Optimization for High-Accuracy Physics-Informed Neural Networks	George Karniadakis <i>Brown University, USA</i>
1530–1615	Coffee Break	
1615–1715	Panel Discussion	
Friday, 14 August 2026		
Time	Title	Speaker
0915–0930	Registration	
0930–1030	Accelerated Langevin Sampling of Complex Distribution using Variable Timestep and Friction	Benedict Leimkuhler <i>University of Edinburgh, UK</i>
1030–1045	Coffee Break	
1045–1145	Kolmogorov Superpositions: Construction, Approximation and Networks	Li-Lian Wang <i>NTU, Singapore</i>
1145–1430	Lunch Break	
1430–1530	Oppenheim Lecture Agentic Scientific Machine Learning: Quo Vadimus?	George Karniadakis <i>Brown University, USA</i>
1530–1615	Coffee Break	
1615–1715	Panel Discussion	

Saturday, 15 August 2026		
Time	Title	Speaker
0915–0930	Registration	
0930–1030		Zhi Chen <i>Peking University, China</i>
1030–1045	Coffee Break	
1045–1145	Intelligent Scientific Computing: from Data-driven Modeling to Discovery	Hao Sun <i>Renmin University, China</i>
1145–1330	Lunch Break	
1330–1430	A Hybrid Two-level MCMC Framework to Accelerate Posterior Mean Estimation with Deep Learning Surrogates for Bayesian Inverse Problems	Juntao Yang <i>NVIDIA, Singapore</i>
1430–1530	Flow-based Bayesian Filtering for High-dimensional Nonlinear Stochastic Dynamical Systems	Ling Guo <i>Shanghai Normal University, China</i>

This schedule is accurate as of 23 Jul 2026 and is subjected to changes.