IMS Young Mathematical Scientists Forum — Applied Mathematics (06–09 Jan 2025)

Name & Affiliation	Talk Title
Gianluca Ceruti University of Innsbruck, Austria	Tree Tensor Network Operators for Long-Range Pairwise Interactions
Shaoning Han National University of Singapore, Singapore	Real-Time Solution of Mixed-Integer Quadratic Programs Using Decision Diagrams
Anran Hu Columbia University, USA	Optimization and Learning for Mean-Field Games via Occupation Measure
Qi Lei NYU Courant Institute of Mathematical Sciences, USA	Efficient and Distribution-aware Model and Data Pruning
Eitan Levin California Institute of Technology, USA	Any-dimensional Optimization
Cheuk Ting Li The Chinese University of Hong Kong, Hong Kong SAR of China	Channel Simulation and Lossy Compression
Tianjiao Li Georgia Institute of Technology, USA	Universal Parameter-free Methods for Convex and Nonconvex Optimization
Atsushi Nitanda A*Star, Singapore	Propagation of Chaos for Mean-field Neural Networks and its Application to Model Merging
Kunlun Qi University of Minnesota-Twin Cities, USA	On the Kinetic Description of Objective Molecular Dynamics (OMD): Multiscale Modeling, Numerics, Data-driven Applications
Andreas Søjmark London School of Economics and Political Science, UK	Stochastic Stefan Problems in Finance: From Contagion to Supercooling
Tianyun Tang National University of Singapore, Singapore	Exploring Chordal Sparsity in Semidefinite Programming with Sparse Plus Low-rank Data Matrices
Gabriele Visentin ETH Zürich, Switzerland	Calibration to Market-implied Risk Measures
Guanyi Wang National University of Singapore, Singapore	Solving Sparse \& High-Dimensional-Output Regression via Compression

Name & Affiliation	Talk Title
Peng Wang University of Michigan, USA	Understanding Distribution Learning of Diffusion Models via Low-Dimensional Modeling
Wenjia Wang Hong Kong University of Science and Technology (Guangzhou), China	Near-Optimal Regret Guarantee of CE Heuristic for Online Linear Programming
Marko Hans Weber National University of Singapore, Singapore	Hedging: Holding Stocks, Trading Bonds
Renyuan Xu New York University, USA	Generative Diffusion Models: Optimization, Generalization and Fine-tuning
Liu Yang National University of Singapore, Singapore	Towards Large Scientific Learning Models with In-Context Operator Networks
Chulhee Yun Korea Advanced Institute of Science & Technology, S.Korea	Provable Benefit of Cutout and CutMix for Feature Learning
Wei Zhang Zuse Institute Berlin, Germany	Mathematical Aspects of Deep-learning Techniques for Identifying Collective Variables of Molecular Dynamics