

# MSML2022 Conference Schedule

Note:

Authors with '\*' will present on the conference.

## Aug 15th, 2022, Monday (GMT+8)

8:20am- 8:35am **Opening address**

8:35am- 9:35am **Plenary Lecture**

- [Learning operators using deep neural networks for multiphysics, multiscale, & multifidelity problems](#)  
Lu Lu (University of Pennsylvania)

9:35am- 10:15am

- [Learning Green's Functions of Linear Reaction-Diffusion Equations with Application to Fast Numerical Solver](#)  
Yuankai Teng (University of South Carolina)\*; Xiaoping Zhang (Wuhan University); Zhu Wang (University of South Carolina); Lili Ju (University of South Carolina)

10:15am- 10:55am

- [A Quantum-Inspired Hamiltonian Monte Carlo Method for Missing Data Imputation](#)  
Didem Kochan (Lehigh University)\*; Zheng Zhang (UC Santa Barbara); Xiu Yang (Lehigh University)

10:55am- 11:35am

- [SpecNet2: Orthogonalization-free Spectral Embedding by Neural Networks](#)  
Ziyu Chen (Duke University)\*; Yingzhou Li (Fudan University); Xiuyuan Cheng (Duke University)

11:35am- 12:15pm

- [Monte Carlo Tree Search based Hybrid Optimization of Variational Quantum Circuits](#)  
Jiahao Yao (University of California, Berkeley)\*; Haoya Li (Stanford University); Marin Bukov (University of California, Berkeley); Lin Lin (University of California, Berkeley); Lexing Ying (Stanford University)

1:30pm- 2:10pm

- [Structure-preserving Sparse Identification of Nonlinear Dynamics for Data-driven Modeling](#)

Kookjin Lee (Arizona State University)\*; Nathaniel A Trask (Sandia National Laboratories)\*; Panos Stinis (Pacific Northwest National Laboratory)

2:10pm- 2:50pm

- [MURANA: A Generic Framework for Stochastic Variance-Reduced Optimization](#)

Laurent CONDAT (KAUST)\*; Peter Richtarik (KAUST)

2:50pm- 3:30pm

- [Optimal denoising of rotationally invariant rectangular matrices](#)
- Emanuele Troiani (EPFL); Vittorio Erba (EPFL)\*; FLORENT KRZAKALA (EPFL); Antoine Maillard (ETH Zurich); Lenka Zdeborova (EPFL)

3:30pm- 4:10pm

- [On the Nash equilibrium of moment-matching GANs for stationary Gaussian processes](#)

Sixin Zhang (IRIT)\*

## **Aug 16th, 2022, Tuesday (GMT+8)**

8:30am- 9:10am

- [Natural Compression for Distributed Deep Learning](#)

Samuel Horváth (MBZUAI)\*; Chen-Yu Ho (KAUST); Ludovit Horvath (Comenius University); Atal N Sahu (KAUST); Marco Canini (KAUST); Peter Richtarik (KAUST)

9:10am- 9:50am

- [Error-in-variables modelling for operator learning](#)

Ravi Patel (Sandia National Laboratories)\*; Indu Manickam (Sandia National Laboratories); Myoungkyu Lee (University of Alabama); Mamikon Gulian (Sandia National Laboratories)

9:50am- 10:30am

- [Data adaptive RKHS Tikhonov regularization for learning kernels in operators](#)

Fei Lu (Johns Hopkins University)\*; Quanjun Lang (Johns Hopkins University); Qingci An (Johns Hopkins University)

10:30am- 11:10am

- [Stochastic and Private Nonconvex Outlier-Robust PCA](#)  
Tyler Maunu (Brandeis University)\*; Chenyu Yu (Princeton University);  
Gilad Lerman (University of Minnesota)

11:10am- 11:50am

- [Momentum Transformer: Closing the Performance Gap Between Self-attention and Its Linearization](#)  
Tan Minh Nguyen (University of California, Los Angeles) \*; Richard Baraniuk (Rice University); Robert Kirby (University of Utah); Stanley Osher (UCLA); Bao Wang (University of Utah)

1:30pm- 2:30pm **Plenary Lecture**

- [Deep Approximation via Deep Learning](#)  
Zuowei Shen (National University of Singapore)

2:30pm- 3:10pm

- [An Upper Limit of Decaying Rate with Respect to Frequency in Linear Frequency Principle Model](#)  
Tao Luo (Shanghai Jiaotong University); Zheng Ma (Shanghai Jiao Tong University); Zhiwei Wang (Shanghai Jiaotong University)\*; Zhiqin John Xu (Shanghai Jiao Tong University); Yaoyu Zhang (Shanghai Jiao Tong University)

3:10pm- 3:50pm

- [Error Estimates for the Deep Ritz Method with Boundary Penalty](#)  
Marius Zeinhofer (Simula Research Laboratory)\*; Johannes Müller (Max Planck Institute for Mathematics in the Sciences)

3:30pm- 4:10pm

- [Notes on Exact Boundary Values in Residual Minimisation](#)  
Marius Zeinhofer (Simula Research Laboratory); Johannes Müller (Max Planck Institute for Mathematics in the Sciences)\*

## **Aug 17th, 2022, Wednesday (GMT+8)**

8:30am- 9:10am

- [Online Weak-form Sparse Identification of Partial Differential Equations](#)  
Daniel A Messenger (University of Colorado Boulder)\*; Emiliano Dall'Anese (Department of Electrical, Computer, and Energy Engineering, University of Colorado Boulder); David Bortz (University of Colorado Boulder)

9:10am- 9:50am

- [Freeze and Chaos: NTK views on DNN Normalization, Checkerboard and Boundary Artifacts](#)

Arthur Jacot (EPFL)\*; Franck Gabriel (EPFL); François Ged (EPFL); Clement Hongler (EPFL)

9:50am- 10:30am

- [Hierarchical partition of unity networks: fast multilevel training](#)  
Nathaniel A Trask (Sandia National Laboratories)\*; Amelia Henriksen (Sandia National Laboratories); Carianne Martinez (Sandia National Laboratories); Eric Cyr (Sandia National Laboratories)

10:30am- 11:10am

- [Concentration of Random Feature Matrices in High-Dimensions](#)  
Zhijun Chen (Carnegie Mellon University) \*; Hayden Schaeffer (Carnegie Mellon University ); Rachel Ward (University of Texas)

11:10am- 11:50am

- [SHRIMP: Sparser Random Feature Models via Iterative Magnitude Pruning](#)  
Yuege Xie (University of Texas at Austin)\*; Robert Shi (University of Texas at Austin); Hayden Schaeffer (Carnegie Mellon University); Rachel Ward (University of Texas)

1:30pm- 2:30pm **Plenary Lecture**

- [Rational Materials Design](#)  
Konstantin Novoselov (National University of Singapore)

2:30pm- 3:10pm

- [A Machine Learning Enhanced Algorithm for the Optimal Landing Problem](#)  
Yaohua Zang (Zhejiang University)\*; Jihao Long (Princeton University); Xuanxi Zhang (Peking University); Wei Hu (Princeton University); Weinan E (Princeton University); Jiequn Han (Flatiron Institute)

3:10pm- 3:50pm

- [Adaptive sampling methods for learning dynamical systems](#)  
Zichen Zhao (National University of Singapore)\*; Qianxiao Li (National University of Singapore)