MATH-IMS Joint Applied Mathematics Colloquium Series
The Chinese University of Hong Kong

This MATH-IMS Joint Colloquium Series is organized by Center for Mathematical Artificial Intelligence (CMAI), under Department of Mathematics and Institute of Mathematical Sciences (IMS) at The Chinese University of Hong Kong. The colloquium series focuses on mathematics and applications of artificial intelligence, big data and related topics.

Date: February 5, 2021 (Friday)
Time: 10am – 11am (Hong Kong Time)
Zoom Link: https://cuhk.zoom.us/j/92775210812

Numerical Integrators for Learning Dynamics
Speaker: Professor Qiang Du, Columbia University

Abstract: Numerical integration of given dynamic systems can be viewed as a forward problem with the learning of unknown dynamics from available state observations as an inverse problem. The latter has received much attention in the data-driven modeling via deep/machine learning, while solving both forward and inverse problems forms the loop of informative and intelligent scientific computing. A natural question is whether a good numerical integrator for discretizing prescribed dynamics is also good for discovering unknown dynamics. This lecture presents a study in the context of Linear Multistep Methods (LMMs).

Bio: Professor Qiang Du obtained his BS degree in mathematics at University of Science and Technology of China in 1983 and earned his Ph.D. in mathematics from Carnegie Mellon University in 1988. Before joining Columbia in 2014, he was the Verne M. Willaman Professor of Mathematics and Professor of Materials Science and Engineering at Penn State University. He is currently the Fu Foundation Professor of Applied Mathematics at Columbia University. Professor Du has received numerous recognitions. In particular, he was an invited speaker at the International Congress of Mathematicians in 2018. He was also selected as a SIAM fellow in 2013 and an AMS fellow in 2020. In 2017, he was elected as a fellow of American Association for the Advancement of Science (AAAS).