THE UNIVERSITY OF HONG KONG

Institute of Mathematical Research
Department of Mathematics

Numerical Analysis Seminar

Weak Generative Sampler

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Abstract

The solution of many typical high-dimensional PDEs (such as the Fokker-Planck, and McKean-Vlasov equations) is associated with a probability distribution. To solve such PDEs by deep learning techniques is usually to simply find a neural network for the density function itself, subject to certain positivity and normalization conditions. The further utilization of the solution requires random sampling again. We introduce a framework of Weak Generative Sampler (WGS) to both solve the PDE and generate samples more efficiently than the PINN and the Ritz method. Our proposed loss function is based on the weak form and the generic probability interpretation of the loss function. The details of this talk will explain why the efficiency and adaptivity are so easy to achieve in this WGS for high-dimensional PDEs.

Date:	June 4, 2025 (Wednesday)
Time:	3:00 pm – 4:00 pm
Venue:	Room 309, Run Run Shaw Building, HKU

All are welcome