Organized by:

香港浸會大學 HONG KONG BAPTIST UNIVERSITY

香港浸會大學理學院 HKBU Faculty of Science

Department of Mathematics

Sponsored by:

香港浸會大學尚志會 HKBU CENTURY CLUB

## Distinguished Lecture Series

# Stochastic Normalizing Flows for Inverse Problems: a Markov Chains Viewpoint

17 November 2021 (Wednesday)
5:00-6:00 p.m. GMT+8 (Hong Kong Time)

Online via Zoom
(Meeting ID: 966 1844 9330)


## Professor Gabriele Steidl

Professor, Technische Universität Berlin


Gabriele Steidl received her PhD and Habilitation in Mathematics from the University of Rostock (Germany), in 1988 and 1991, respectively. Since 2020 she is a member of the DFG Fachkollegium Mathematik and the Program Director of SIAG-IS (SIAM). She is in the executive board of the MATH+ Excellence Cluster (Berlin) and serves in the Scientific Advisory Committee of the Helmholtz Imaging Platform of the Helmholtz Association. She is a member of the Editorial board of Journal of Mathematical Imaging and Vision, SIAM Journal on Imaging Sciences, The Journal of Fourier Analysis, Inverse Problems and Imaging, Journal of Optimization Theory and Applications, Transactions in Mathematics and its Applications and Acta Applicandae Mathematicae (ACAP).

## ABSTRACT


Stochastic normalizing flows can overcome topological constraints and improve the expressiveness of normalizing flow architectures by combining deterministic, learnable flow transformations with stochastic sampling methods. We consider stochastic normalizing flows from a Markov chain point of view. In particular, we replace transition densities by general Markov kernels and establish proofs via Radon-Nikodym derivatives which allows to incorporate distributions without densities in a sound way. Further, we generalize the results for sampling from posterior distributions as required in inverse problems. The performance of the proposed conditional stochastic normalizing flow is demonstrated by numerical examples. Joint work with P. Hagemann and J. Hertrich.


*Sponsored by:*

CMIV Centre for Mathematical Imaging and Vision

Joint Research Institute for Applied Mathematics

For enquiries, please contact Department of Mathematics
http://www.math.hkbu.edu.hk/

Tel: (852) 3411 2348
Email: math@hkbu.edu.hk