

Department of Mathematics The Chinese University of Hong Kong

數學系 香港中文大學

Phone: (852) 3943 7988 • Fax: (852) 2603 5154 • Email: <u>dept@math.cuhk.edu.hk</u> (Math. Dept.) Room 220, Lady Shaw Building, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong



Sparse Compression of Expected Solution Operators

Professor Daniel Peterseim University of Augsburg

<u>Abstract</u>

We show that the expected solution operator of prototypical linear elliptic partial differential operators with random coefficients is well approximated by a computable sparse matrix. This result is based on a random localized orthogonal multiresolution decomposition of the solution space that allows both the sparse approximate inversion of the random operator represented in this basis as well as its stochastic averaging. The approximate expected solution operator can be interpreted in terms of classical Haar wavelets. When combined with a suitable sampling approach for the expectation, this construction leads to an efficient method for computing a sparse representation of the expected solution operator.

Date:	7 November 2018 (Wednesday)
Time:	4:30pm - 5:30pm
Venue:	Room 219, Lady Shaw Building,
	The Chinese University of Hong Kong, Shatin

All are Welcome