THE UNIVERSITY  OF HONG KONG

Institute of Mathematical Research
Department of Mathematics

COLLOQUIUM

Energy Decomposition with Applications to Operator Compression and Multiresolution Matrix Decomposition

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Abstract

In this work, we propose the Energy Decomposition Framework for symmetric positive definite matrix which can successfully reflect the hidden geometric information of the operator inheriting the localities of operator itself. By virtue of this framework, we also propose the Patch Pairing algorithm which serves as a partitioning algorithm for the underlying geometric structure. By utilizing these information and the appropriate partitioning, we propose a systematic operator compression scheme for the operator which satisfies the prescribed compression error and well-posedness requirement. In terms of linear system solver, we also extend this compression scheme into a multiresolution matrix factorization algorithm which achieves nearly optimal performance on both complexity and well-posedness.

Date:	**September 13, 2017 (Wednesday)**
Time:	**4:00 – 5:00pm**
Venue:	**Room 210, Run Run Shaw Bldg., HKU**

All are welcome