

NUMERICAL ANALYSIS AND SCIENTIFIC COMPUTING
SEMINAR

Structured Matrix Approximation by Separation and Hierarchy

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Abstract: The past few years have seen the advent of big data, which brings unprecedented convenience to our daily life. Meanwhile, from a computational point of view, a central question arises amid the exploding amount of data: how to tame big data in an economic and efficient way. In the context of matrix computations, the question consists in the ability to handle large dense matrices. In this talk, I will first introduce data-sparse hierarchical representations for dense matrices. Then I will present recent development of a versatile algorithm called SMASH to operate dense matrices with optimal complexity in the most general setting. Various applications will be presented to demonstrate the advantage of SMASH over traditional approaches.

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Mathematics and Science Center: MSC W303

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