

数学与系统科学研究院

计算数学所学术报告

报告人: **Prof. Yunkai Zhou**

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报告题目:

**Fast algorithms for large scale EVD
and SVD calculations**

邀请人: 周爱辉 研究员

报告时间: **2015 年 8 月 18 日 (周二)**

上午 10:00~11:00

报告地点: 数学院南楼七层

702 会议室

Abstract:

In the first part of the talk, we present a block Davidson method with two different type of filters for large scale eigenvalue decomposition (EVD) and singular value decomposition (SVD). Our method is based on polynomial filters as well as rational filters. It has the advantage of using the smallest amount of memory comparing with other state-of-the-art algorithms, but still achieving similar or better computational speed.

In the second part of the talk, we present two spectrum partition methods. The one based on partitioned `eigs()` can be used to conveniently compute several thousands of eigenpairs for matrices with relatively large dimension, in Matlab. In comparison, `eigs()` without partition applied to the same problems would either take very long to converge or run out of memory. Both of our partitioned methods are designed to be intrinsically-parallel, suitable for solving truly large eigenproblems on supercomputers.

欢迎大家参加！