

数学与系统科学研究院

计算数学所学术报告

**报告人: Associate Prof. John Singler**

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**报告题目:**

**An Incremental Proper Orthogonal  
Decomposition Algorithm for PDE  
Simulation Data**

**邀请人: 龚伟 副研究员**

**报告时间: 2019 年 6 月 25 日 (周二)**

**下午 16:00-17:00**

**报告地点: 科技综合楼三层**

**311 报告厅**

## **Abstract:**

**We discuss an incremental algorithm for proper orthogonal decomposition (POD) computations. Specifically, we develop an incremental matrix SVD algorithm with respect to a weighted inner product for POD computations of data arising from Galerkin-type simulation methods for time dependent PDEs. The algorithm initializes and efficiently updates the POD eigenvalues and modes during the time stepping in a PDE solver without storing the simulation data. We present new numerical analysis results for the algorithm, and discuss how the algorithm returns an easily computed error bound. We demonstrate the effectiveness of the algorithm using finite element simulation data for two nonlinear PDEs.**

**欢迎大家参加！**