



复旦大学数学科学学院 数学综合报告会

报告题目: **Reduced Complex Dynamical System Models and Applications to Data Driven Uncertainty Quantification**

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摘要: Filtering is concerned with the sequential estimation of the state, and uncertainties, of a Markovian system, given noisy observations. It is particularly difficult to achieve accurate filtering in complex dynamical systems, such as those arising in turbulence, in which effective low-dimensional representation of the desired probability distribution is challenging. Nonetheless recent advances have shown considerable success in filtering based on certain particular reductions of the system underlying data, which are carefully chosen but modelled simple enough to enable closed form filters to be developed. The purpose of this talk is to analyze the effectiveness of these simplified models, and to suggest modifications of them which lead to improved filtering in some parameter regimes.

This is collaboration with Andrew Stuart at University of Warwick, and David Cai at Courant Institute and Shanghai Jiao Tong University.

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