



## Distinguished Lecture Series

# Multiscale Analysis: Understanding And Improving Ensemble Methods For Inversion



21 April 2021 (Wednesday)

10:00-11:00 a.m. GMT+8 (Hong Kong Time)



Online via Zoom

(Meeting ID: 945 6745 3135)



## ABSTRACT

Professor Stuart will describe the use of ensemble based particle methods to solve inverse problems, including ensemble and unscented Kalman methods. He will show how multiscale analysis can be used to understand the performance of these methods; and also how multiscale methods can be used to improve upon these methods.

## Professor Andrew Stuart

Bren Professor of Computing and Mathematical Sciences,  
Caltech

Andrew Stuart is the Bren Professor of Computing and Mathematical Sciences at the California Institute of Technology. Previously he held permanent positions at the University of Bath, Stanford University and Warwick University. His research centers on the study of algorithms which use data to inform predictive mathematical models, with applications in the physical, biomedical and social sciences. The research forges links between applied mathematics and statistics, and draws on emerging methodologies in machine learning. His research achievements include the development of a mathematical framework for the Bayesian formulation of inverse problems, and the analysis and design of Markov chain Monte Carlo methods and ensemble Kalman methods for the solution of these inverse problems. Andrew is a recipient of The Whitehead Prize from The London Mathematical Society, the Monroe Martin Prize from the Institute for Physical Science and Technology, and the Crawford, Dahlquist and Wilkinson Prizes from the Society for Industrial and Applied Mathematics (SIAM); Andrew was made an inaugural SIAM Fellow in 2009 and was elected as a Fellow of the Royal Society in 2020.

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