SCIENTIFIC COMPUTING ACROSS SCALES

Extreme Events and Criticality in Fluid Mechanics

APRIL 15-18, 2019
FIELDS INSTITUTE, TORONTO

Description
A sequel to the Thematic Program on Multiscale Scientific Computing (January-April 2016), this retrospective workshop will explore the interplay between mathematical analysis and scientific computations with applications to some key classical and emerging open questions in theoretical fluid mechanics.

These problems include extreme, possibly singular, behavior in hydrodynamic models such as the Navier-Stokes equations and transition to turbulence with the associated questions concerning critical behavior.

Computational challenges arising in such contexts include solution of PDE-constrained optimization problems, finding fixed-point solutions with various properties, as well as model-reduction strategies. A recurrent theme of the workshop will be innovative use of computational techniques designed to complement mathematical analysis.

Invited speakers

Public Lecture:
Javier Jimenez (Polytechnic University of Madrid)

Keynote Lectures:
Sergei Chernyshenko (Imperial College London)
Carlo Cossu (LHEEA Nantes)
Colm-Cille Caulfield (Cambridge University)
Vera Mikyoung Hur (University of Illinois at Urbana-Champaign)

Organizing Committee:
David Goluskin - University of Victoria
Bartosz Protas - McMaster University
Lennaert van Veen - UOIT

For more information, please visit:
http://www.fields.utoronto.ca/activities/18-19/extreme-events