

The American Mathematical Society
Presents the

von Neumann Symposium

Multimodel and Multialgorithm Coupling for Multiscale Problems

Snowbird, Utah

July 4–7, 2011



Many important applications in both science and technology are characterized by having interactions among various phenomena or components with dissimilar structures and occurring over a broad range of length and time scales. These classes of problems require innovative approaches spanning a large range of scales. In this regard, multimodel and multialgorithm methods have emerged as promising new directions. A defining characteristic of these approaches is that rather than using a single formulation for a problem, they utilize distinct models and algorithms, each appropriate to a particular scale. Multimodel and multialgorithm methods are powerful tools; however, the mathematical and numerical analysis required for successfully combining models or coupling algorithms can be as complicated as the analysis of the individual models and algorithms themselves.

By their nature, multiscale problems are highly interdisciplinary, so multimodel and multialgorithm methods are being developed in a variety of contexts and disciplines. This symposium will bring together applied mathematicians and scientists from a variety of application areas to discuss current practices and future research directions in the design of hybrid methodologies for multiscale phenomena. In addition, the mathematics community will have the opportunity to meet with applications specialists to identify some of the key mathematical ideas that transcend particular applications. Overall, the symposium should serve as a focal point for assessing the state of the art and articulating important future research directions.

Plenary Speakers

Aleksandar Donev
Courant Institute, New York University

Weinan E
Princeton University

Nicolas Hadjiconstantinou
Massachusetts Institute of Technology

George Karniadakis
Brown University

Rupert Klein
Freie Universität, Berlin

Petros Koumoutsakos
ETH Zurich

J. Tinsley Oden
The University of Texas at Austin

George Oster
University of California, Berkeley

Organizers

John B. Bell (chair)
Lawrence Berkeley National Laboratory

Alejandro L. Garcia
San Jose State University

Francis J. Alexander
Los Alamos National Laboratory

Application Process

Participation in this program is limited. Visit www.mathprograms.org to apply for an invitation and to request limited support funds. All requests will be reviewed and considered by the organizing committee. **Application deadline is February 1, 2011.**

Letters of invitation with specific offers of support (if applicable) will be emailed in late February, along with further information on travel and accommodations at Snowbird. All individuals who apply will be notified of the decision as to acceptance or declination before **March 1, 2011.**

If you have questions regarding applications, please contact the AMS at meet@ams.org.