

Center for Applied Mathematical Sciences Distinguished Lecturer, Fall 2016



Linda Petzold

Professor

University of California, Santa Barbara

Linda Petzold research concerns differential algebraic equations and the computer simulation of large real-world social and biological networks.

Petzold was the first winner of the J. H. Wilkinson Prize for Numerical Software, for her work on DASSL, a system for the numerical solution of differential algebraic equations. She was elected to the National Academy of Engineering in 2004 "for advances in the numerical solution of differential/algebraic equations and their incorporation into widely distributed software." She became a Fellow of the Society for Industrial and Applied Mathematics in 2009 and of the Association for Computing Machinery in 2013. She is also a fellow of the American Society of Mechanical Engineers and of the American Association for the Advancement of Science. In 2011 she won the SIAM/ACM Prize in Computational Science and Engineering. On January 30, 2015 she was given an honorary doctorate by Uppsala University.

The Emerging Roles and Computational Challenges of Stochasticity in Biological Systems

Abstract:

In recent years it has become increasingly clear that stochasticity plays an important role in many biological processes. Examples include bistable genetic switches, noise enhanced robustness of oscillations, and fluctuation enhanced sensitivity or "stochastic focusing".. Numerous cellular systems rely on spatial stochastic noise for robust performance. We examine the need for stochastic models, report on the state of the art of algorithms and software for modeling and simulation of stochastic biochemical systems, and identify some computational challenges.

Monday, November 28, 2016

Kaprielian Hall

**Tea: 3:00 p.m.
KAP 410**

**Lecture: 3:30 p.m.
KAP 414**

**Wine & Cheese: 4:30 p.m.
KAP 410**



Kaprielian Hall

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