



Pacific Institute *for the*
Mathematical Sciences

Hugh C. Morris Lecture Series

George Papanicolaou (Stanford University)

3pm, November 7, 2011

MATX1100, University of British Columbia

Pre-lecture reception at 2pm in MATH126 (lounge), all welcome.

Uncertainty quantification and systemic risk

The quantification of uncertainty in large-scale scientific and engineering computations is rapidly emerging as a research area that poses some very challenging fundamental problems, which go well beyond sensitivity analysis and associated small fluctuation theories. We want to understand complex systems that operate in regimes where small changes in parameters can lead to very different solutions. How are these regimes characterized? Can the small probabilities of large (possibly catastrophic) changes be calculated? These questions lead us into systemic risk analysis, that is, the calculation of probabilities that a large number of components in a complex, interconnected system will fail simultaneously.

Prof. George Papanicolaou is a highly regarded applied mathematician, a member of the U.S. National Academy of Sciences, winner of the SIAM von Neumann Prize (2006) and the William Benter Prize in Applied Mathematics (2010).

About the Hugh C. Morris Lecture Series: This series has been generously endowed by Dr. Hugh Morris, former Chair of the PIMS Board of Directors and a longtime friend of the mathematical sciences. It attracts top mathematical scientists in the world to deliver presentations on current research topics to PIMS sites in Western Canada and Washington State.