

MIT SOCIETY FOR INDUSTRIAL AND APPLIED MATHEMATICS

MIT-SIAM

APPLIED MATHEMATICS AND CAREERS IN THE INDUSTRY SEMINAR SERIES

IN CONJUNCTION WITH MIT CRIBB

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Dr. Lalitha Venkataramanan

Schlumberger Doll Research

April 8th 2013, Monday

3:30pm-5:00pm

Room 2-136

Refreshments served

Title: **Some Applied Mathematics topics in Schlumberger**

Abstract: The search for oil and gas has three objectives: to identify and evaluate hydrocarbon-bearing reservoirs; to bring hydrocarbons to the surface safely and cost-effectively, without harming the environment; and to maximize the yield from each discovery.

The first part of the talk will focus on some areas of research in applied mathematics in Schlumberger. These areas include forward modeling and inversion, uncertainty analysis, telemetry, pattern recognition as well as signal and image processing. The second part of the talk will focus on use of downhole nuclear magnetic resonance data to infer petro-physical as well as properties of insitu hydrocarbon.

Speaker's Biography: Dr. Lalitha Venkataramanan is a Scientific Advisor at Schlumberger Doll Research in Cambridge, Massachusetts. She graduated with a Ph.D. degree in Electrical Engineering from Yale University in 1998 and soon after joined Schlumberger in Ridgefield, CT as a research scientist. She is currently also program manager of the Measurement Interpretation program in the Math and Modeling department. Her research interests include analysis of NMR and optics data, forward modeling, inversion and uncertainty analysis. She is a member of SPWLA, SPE, IEEE and SIAM, AWM professional societies. She is a board member of the SIAM Industry Committee. Since 2000, she has also been a board member of Industrial Advisory Committee at Institute of Math and its Applications, Minneapolis. She holds 9 patents and over 25 publications in peer-reviewed journals.

Please contact Yi Zeng (yizeng@math.mit.edu) for any questions.

Dr. Javier Tordable

Google

April 16th 2013, Tuesday

4:00pm-5:30pm

Room 32-124

Refreshments served

Title: **Mathematics at Google** (a virtual seminar)

Abstract: There is a wide variety of mathematics used at Google. For example Linear Algebra in the PageRank algorithm, used to rank web pages in search results. Or Game Theory, used in ad auctions, or Graph Theory in Google Maps. At Google there are literally dozens of products which use interesting Mathematics. These are not just research prototypes, but real Google products; in which Mathematics play a crucial role. In this presentation, I introduce several applications of Mathematics at Google. I begin with a detailed explanation of search on the web and PageRank. Then I show a dozen examples of Google products and the corresponding Mathematics that are used. The presentation has an extensive list of links and references. And it's available in English and Spanish.

Speaker's Biography: Javier Tordable obtained his PhD in mathematics from the University of Valladolid, Spain with master degrees in Computer Science (Ingeniero Superior en Informática) and Mathematics (Licenciado en Matemáticas). He joined Google in 2008 and works currently in Google Seattle. His current research focuses on computer algorithms and theory.

Please contact Ruby Fu (rubyfu@mit.edu) for any questions.
