SYSTEMS, CONTROLS AND ROBOTICS SEMINAR SERIES

Dr. Akhil Datta-Gupta
Associate Department Head
Regents Professor
Petroleum Engineering, Texas A&M University
a.datta-gupta@pe.tamu.edu

Friday, October 24, 2014
4:00 p.m. / 108 Jack E. Brown Chemical Engineering Building

Towards a Transparent Earth: Subsurface Flow and Transport Tomography

ABSTRACT

With the advances in subsurface characterization and imaging, petroleum reservoir models now-a-days routinely consist of multimillion cells representing geologic heterogeneity. Reconciling such high resolution geologic models to flow and transport data leads to a non-linear and ill-posed inverse problem. In this talk I will briefly touch upon three aspects of such inverse modeling: (1) recasting flow and transport equations as tomographic equations using a high frequency asymptotic approach and solution of the forward problem (2) parsimonious representation of geologic models via re-parameterization using basis functions and (3) solution of the inverse problem via multi-scale

BIO

Dr. Akhil Datta-Gupta is Regents Professor and holder of the L.F. Peterson '36 Chair in the Harold Vance Department of Petroleum Engineering at Texas A&M University. Dr. Datta-Gupta's research interests include multiphase flow simulation techniques, reservoir optimization, large-scale parameter estimation via inverse methods and uncertainty quantification. He is recipient of the John Franklin Carll Award and the Lester C. Uren Award of the Society of Petroleum Engineers (SPE) for significant technical contributions in petroleum reservoir characterization and streamline-based flow simulation. He is an SPE Distinguished Member, Distinguished Lecturer, Distinguished Author, and recipient of the U.S. Department of Energy award for outstanding contributions to Basic Research in Geosciences. His research program is funded by the U.S. Department of Energy and oil and gas companies world-wide. Dr. Datta-Gupta was elected to the U.S. National Academy of Engineering in 2012.

Pizza will be served at 3:45 p.m.