

## Multi-Scale and Stochastic Modeling of Porous Media

Chairs: Prof. X. Frank Xu  
Stevens Institute of Technology, USA  
&  
Prof. George Deodatis  
Columbia University, USA

### Session I (13:30 – 15:45; June 8, 2009; Jed D. Satow Room)

- 87 X. Frank Xu (USA)  
*A Random-Field Based Orthogonal Expansion Method to Circumvent Curse-of-Dimension in Multiscale Modeling of Random Media Problems*
- 7 Marcio A. Murad, Marcio R. Borges & Rosa Aguilar (Brasil)  
*A New Upscaling Scheme for Flow in Strongly Heterogeneous Poroelastic Media with Long-Range Correlations*
- 58 M. Berveiller, Y. Le Pape, J. Sanahuja & A. Giorla (France)  
*Sensitivity Analysis and Uncertainty Propagation in Multiscaled Modeling of Concrete*
- 96 Azadeh Mohebi, Paul Fieguth & Marios Ioannidis (Canada)  
*Modeling and Reconstruction of Two-Scale Porous Media Using MRI Measurement*
- 195 J. Frey, R. Chambon & C. Dascalu (France)  
*A Two-Scale Poromechanical Model*
- 82 Ying Liu, Azadeh Mohebi & Paul Fieguth (Canada)  
*Modeling of Multiscale Porous Media Using Multiple Markov Random Fields*

### Session II (09:45 – 12:00; June 10, 2009; Room 477)

- 11 Yves Gueguen & Joel Sarout (France)  
*Poroelasticity and Effective Elasticity in Porous and Cracked Rocks*
- 134 Nicholas P. Chotiros, & Marcia J. Isakson (USA)  
*Wave Speed and Dispersion in Fluid-Saturated Granular Media due to Grain Contact Physics*
- 64 M.V. Madland, E. Omdal, H. Breivik, R.I. Korsnes, A. Hiorth, & T.G. Kristiansen (Norway)  
*Investigation of The Effective Stress Relations for Various Outcrop Chalk*
- 15 Mijia Yang (USA)  
*Multiscale Analysis of Crack Propagation in a 2D Plate Using Peridynamics*
- 48 Joel Sarout, Yves Gueguen, & Emmanuel David (France)  
*Frequency Effects and Fluid Pressure Polarization in Porous and Cracked Rocks*
- 198 Ahmed Elmekati & Usama El Shamy (USA)  
*DEM/FEM Multiscale Technique for Soil-Structure Interaction Problems*