# IMAGe Seminar

*Institute for Mathematics Applied to Geosciences at NCAR*

## MULTISCALE NUMERICAL METHODS FOR FLOW AND TRANSPORT IN HETEROGENEOUS POROUS MEDIA AND THEIR APPLICATIONS

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**Abstract:**

Typical porous media processes are affected by heterogeneities at different length scales. In this talk, I will describe multiscale numerical methods for flow and transport in heterogeneous porous media. The main focus of the talk is on subgrid capturing using various local and global methods. I will discuss the use of local boundary conditions, oversampling methods and the use of global information in capturing subgrid effects. The mathematical analysis of these methods will be discussed. Some extensions of these methods to transport equations and coarse gridding will be presented. I will also discuss the applications of these methods to uncertainty quantification in heterogeneous reservoirs.

**Mesa Lab – Chapman Room**
**Wednesday, March 7, 2007**
**2:00 pm**
**(Refreshments at 1:45pm)**

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