

COLLABORATIVE RESEARCH CENTER 837

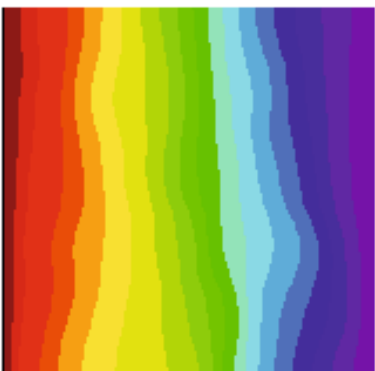
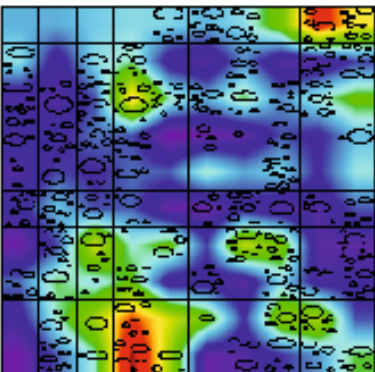
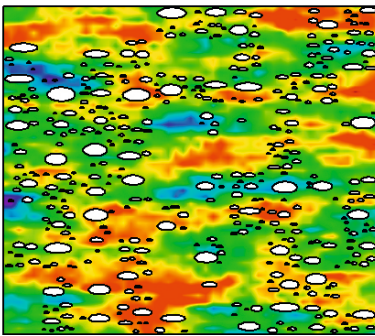
INTERACTION MODELING IN MECHANIZED TUNNELING

RUB

Seminar: Homogenization Theory & Multiscale Methods

Dr. Peter Popov

Bulgarian Academy of Sciences



07.12.2010 – 09:00 ~ 17:00 h – IA 4/56

Modeling and numerical simulations of fractured, vuggy, porous media is a challenging problem which occurs frequently in reservoir engineering. The problem is especially relevant in flow simulations of karst reservoirs where vugs and caves are embedded in a porous rock and are connected via fracture networks at multiple scales.

This short course will introduce to basic concepts of homogenization theory such as upscaling diffusion and elasticity problems with highly oscillatory periodic coefficients. An overview will be given also of methods for problems with no clear scale separation as well as for nonlinear problems.

The second part of the course will look into solving multiscale problems in single and multiphase subsurface flows, as well as geomechanics problems (coupled flow and poroelasticity).

Guests are sincerely welcome!