University of Stuttgart
Germany

Department for Stochastic Simulation
and Safety Research for Hydrosystems (LS³)

Model comparison in heterogenenous porous media

MSc. Thesis/ BSc. Thesis/ Projektarbeit Topic

Multiphase flow in porous media is often simulated using (Stochastic) Invasion Percolation (SIP) models. While many IP model variations exist, a quantitative comparison of these competing models with experiments is lacking. We have developed a comparison method for SIP models to imaging-based gas injection in homogenous soil experimental data.

The successful applicant will contribute to a comparison of the SIP models to imaging-based experimental data in heterogeneous soils.

Prospective Tasks
- Familiarizing with SIP model versions (existing codes)
- Familiarizing with a comparison method for model-experiment -comparison (existing code)
- Implementing heterogeneities in SIP model (in Matlab)
- Applying the comparison method to the updated SIP models and experimental data.
- Documenting the method and the results

General Information
- Advisors: Ishani Banerjee (MSc.), Dr. Anneli Guthke, Prof. Wolfgang Nowak

Desireable Skills
- MATLAB, interest/skill in coding
- General understanding of modelling multiphase flow in porous media

Apply now!
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