



SFB 1313

Summer school 2019

09th – 20th September 2019 at University of Stuttgart, Germany

The summer school brings together doctoral researchers of the collaborative research centre “Interface-Driven Multi-Field Processes in Porous Media – Flow, Transport and Deformation” (SFB 1313) in small groups to work on specified research projects. Each group consists of two to seven persons from different disciplines who combine their experimental and modelling knowledge to work on their projects for two weeks. Internal and external researchers are invited as experts for the summer school to support the projects. All groups will meet during the kick-off and closing meeting, where the doctoral researchers will present their projects and results.

Programme:

Kick-off event:

Date: 09th September 2019

Place: Eulenhof (Robert-Leicht-Straße 161, 70569 Stuttgart)

| | |
|----------|---|
| 08:45 am | Arrival |
| 09:00 am | Welcome speech |
| 09:15 am | Keynote talk: 'Phase-field fracture modeling and adaptive mesh refinement in porous media', Thomas Wick |
| 10:00 am | Pore-scale coupling of free flow and porous-medium flow under local thermal non-equilibrium using a locally refined staggered grid approach |
| 10:20 am | Development of parallel efficient algorithms for Stokes-Darcy-coupling |
| 10:40 am | Statistical inversion of fractures in porous media using sharp and diffusive crack models |
| 11:00 am | Coffee break |
| 11:30 am | Uncertainty-aware Bayesian validation and visual analysis of the spatiotemporal development of a microbially enhanced coal-bed methane production model |
| 11:50 am | Precipitation processes in porous media – comparing of different model approaches and experiments in micro-fluidic cells |
| 12:10 pm | Implementation of a linearized transport equation as a coupling condition for free flow and porous-medium flow in DUMUX |
| 12:30 pm | Lunch break |

Project work:

Date: 9th – 19th September 2019

Place: each group schedules individual meetings

Guest talks:

Date: 12th September 2019, 4:30 pm, **Vahid Joekar-Niasar**
17th September 2019, 4:30 pm, **Benjamin Uekermann**
Place: University of Stuttgart, PWR 61, MML, 70569 Stuttgart

Social programme:

Date: 10th September 2019, 6:00 pm, BBQ
12th September 2019, 6:00 pm, Bar tour
17th September 2019, 6:00 pm, Board game night
19th September 2019, 6:00 pm, Frisbee

Closing event:

Date: 20th September 2019
Place: University of Stuttgart, Universitätsstr. 38, V38.04, 70569 Stuttgart

| | |
|----------|--|
| 08:45 am | Arrival |
| 09:00 am | Opening speech |
| 09:05 am | Keynote talk: 'Experimental observations and interpretation of coupling of free flow and porous structures in a microfluidic setup', Matthijs De Winter |
| 09:50 am | Pore-scale coupling of free flow and porous-medium flow under local thermal non-equilibrium using a locally refined staggered grid approach |
| 10:30 am | Coffee break |
| 10:50 am | Development of parallel efficient algorithms for Stokes-Darcy-coupling |
| 11:30 am | Statistical inversion of fractures in porous media using sharp and diffusive crack models |
| 12:10 pm | Uncertainty-aware Bayesian validation and visual analysis of the spatiotemporal development of a microbially enhanced coal-bed methane production model |
| 12:50 pm | Lunch break |
| 2:00 pm | Precipitation processes in porous media – comparing of different model approaches and experiments in micro-fluidic cells |
| 2:40 pm | Implementation of a linearized transport equation as a coupling condition for free flow and porous-medium flow in DUMUX |
| 3:20 pm | Closing speech |
| 3:30 pm | Get-together |

Invited guests:

Matthijs de Winter (University of Utrecht)
Vahid Joekar-Niasar (University of Manchester)
Benjamin Uekermann (TU Eindhoven)
Thomas Wick (Leibniz University Hannover)



Spokesmen: Prof. Dr.-Ing. Rainer Helmig,
Prof. Dr. rer. nat. Christian Rohde

<https://www.sfb1313.uni-stuttgart.de/>