
Monday

Welcome

13:00	Welcome to SS Bench III/CO ₂ Bench	Olaf Kolditz, Haibing Shao
13:10	Program & Organization	Leslie Jakobs, Thomas Kalbacher
13:20	Workshop overview	Carl Steefel, Steve Yabusaki, George Yeh

Session 1 - Biogeochemistry

14:00	Simulating metal release and attenuation in mine waste deposits – progress report on code intercomparison	Uli Mayer
14:25	A Benchmarking Study on Heavy Metal Cycling in Lake Sediments	Nic Spycher & Bhavna Arora
14:50	Influence of periodic heat storage on contaminant transport and biodegradation	Christof Beyer

15:15 *coffee (15 min)*

Session 2 - Numerical Analysis

15:30	Numerical models of reactive transport in porous media	Souhila Sabit
15:55	Dual Diagonalization of Reactive Transport Equations	George Yeh
16:20	Assessment of the grid-dependent accuracy of mixing-controlled reactive transport	S Sevinc Sengor
16:45	Comparison of different numerical schemes in solving reactive transport problems using OpenGeoSys	Haibing Shao

17:30 *ice breaker* Lounge

Tuesday

Session 3 - Waste Repositories

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| 9:00 | Benchmark based on a coupled reactive transport column experiment in compacted bentonite with explicit treatment of electrostatic effects | Peter Alt-Epping |
| 9:25 | Benchmarking multicomponent diffusion based on the Nernst-Planck Equation | Carl Steefel |
| 9:50 | In Situ Uranium Bioremediation Benchmark Problem | Steve Yabusaki |
| 10:15 | Coupled THCM models of bentonite heating and hydration tests to study the interactions of compacted bentonite with concrete and carbon steel | Javier Samper |

10:40 *coffee (15 min)*

Session 4 - Mechanical Processes

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| 10:55 | Decalcification of cracked cement structures | Diederik Jacques & Janez Perko |
| 11:20 | Using discrete fractures to represent macropore-driven flow in waste rock – a laboratory scale benchmark evaluation | Stefan Broda |

11:45 *lunch and poster session*

Session 5 - Multi-phase Coupled Reactive Transport

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| 12:45 | Modelling approach to complex geochemical interactions in deep geological repository conditions | Olivier Bildstein |
| 13:10 | Benchmarking permeability-porosity and tortuosity-porosity relationships in reactive transport problems | Uli Mayer |
| 13:35 | New developments of the geochemical code CHES and the reactive-transport code HYTEC | Laurent De Windt & Jérôme Corvisier |
| 14:00 | A Model of Coupled Multiphase Flow, Thermal Transport, Reactive Transport and Geomechanics in Subsurface Media | Peter Tsai |
| 14:25 | Benchmarking the ability of reactive transport codes to model cement/clay interactions | Francis Claret |

15:00 *coffee (15 min)*

Session 6 - CO₂ Bench

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| 15:15 | CO ₂ benchmarking overview (EES Paper) | Olaf Kolditz |
| 15:25 | Assessment of Well Safety from Pressure and Temperature-Induced Damage during CO ₂ Injection in Deep Saline Aquifers | Ashok Kumar Singh |
| 15:45 | CO ₂ monitoring/modeling on surface | Olaf Kolditz |
| 16:05 | Numerical simulation of CO ₂ storage in the North German Basin | Christof Beyer |
| 16:15 | Discussion | Martin Streibel |
| 19:00 | <i>dinner</i> | Das Alte Rathaus Restaurant |

Wednesday

New Benchmarks and Special Issue

- 9:00 Summary of Outcome from Day 1+2
 - 9:30 Thematic assemblies in separate rooms, part 1
(based on the outcome of Day 1+2)
Common goals, strategy etc.
Development of Milestones
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10:30 *coffee (15 min)*

- 10:45 Thematic assemblies in separate rooms, part 2
(based on outcome of Day 1+2)
Common goals, strategy etc.
Development of Milestones
- 11:30 Feedback into Plenum from thematic assemblies

Milestones and Goals from WP and thematic
assemblies
Integration & Synthesis
- 12:30 Special Issue - discussion