



University of Stuttgart  
Germany



## Sino-German Symposium “Opportunities and Challenges in CO<sub>2</sub> Geologic Utilization and Storage”

### Symposium Agenda

#### Meeting Day 1 - 22.02.2023

(all times are Berlin local time; China local time is 7 hours ahead)

Morning: Invited Keynotes (Chinese delegates will join remotely; all time slots include 5- 10 minutes Q&A)

Host: Prof. Sergey Oladyskin

8:00-8:10 am Opening in “real” by Prof. Wolfgang Nowak (will be recorded and available)

8:10-8:40 am Keynote 1 (Speaker: Prof. Rainer Helmig (University of Stuttgart, Germany), Presentation title: Storage of green gas in the subsurface-challenges for models and simulation)

8:40-9:10 am Keynote 2 (Speaker: Prof. Qi Li (IRSM-CAS, China, remote), presentation title TBD)

9:10-9:40 am Keynote 3 (Speaker: Speaker: Prof. Zhengmeng Hou, presentation title: CO<sub>2</sub> methanation and renewable natural gas storage in depleted petroleum reservoirs – a new CCUS technology)

9:40- 10:00 am Tea break

10:00- 10:30 am Keynote 4 (Prof. Zhonghe Pang (Institute of Geology and Geophysics, China, remote), presentation title: CO<sub>2</sub>EATER)

10:30- 10:50 am Sponsor Speech 1 (Speaker: Lars Oliver Kautschor (TESCAN), presentation title: TESCAN In situ and dynamic 3D imaging - Example CO<sub>2</sub> Dissolution)

10:50- 11:10 am Invited Speech 1 (Speaker: Liwei Zhang (IRSM-CAS, China, remote), presentation title: CT characterization of wellbore cement degradation under geologic CO<sub>2</sub> storage conditions)

11:10 am- 14:00 pm Lunch break (Germany)

14:00- 15:30 pm Round table (Germany)

15:30- 15:50 pm Tea brake (Germany)

15:50- 17:00 pm Round table (Germany)

18:00 pm Get together (Germany):

Restaurant “Wirtshaus Lautenschlager”, Lautenschlagerstraße 24, 70173 Stuttgart

Venue at the University of Stuttgart:  
Pfaffenwaldring 5a, 70569 Stuttgart, Stuttgart Center for Simulation Science.



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## Sino-German Symposium “Opportunities and Challenges in CO<sub>2</sub> Geologic Utilization and Storage”

### Meeting Day 2 - 23.02.2023

Host: Prof. Sergey Oladyskin

Morning: Invited Presentations (Chinese delegates will join remotely; all time slots include 5 minutes Q&A)

8:30-8:50 am Invited Presentation 1 (Speaker: Wolfgang Nowak (University of Stuttgart, Germany), presentation title: Finite Volume Neural Network: Physics-confined machine learning of flow & transport models)

8:50-9:10 am Invited Presentation 2 (Speaker: Hejuan Liu (China, remote), presentation title: Mechanism of fault reactivation and risk assessment in the underground gas storage)

9:10-9:30 am Invited Presentation 3 (Speaker: Holger Steeb (University of Stuttgart, Germany), presentation title: The importance of hydro-mechanical coupling phenomena for (fractured) reservoir modeling)

9:30-9:50 am Tea break

9:50- 10:10 am Invited Presentation 4 (Speaker: Ke Xu (Peking University, China, remote), presentation title: Thermodynamic stability and spontaneous evolution of capillary trapping after CO<sub>2</sub> sequestration into subsurface porous media)

10:10- 10:30 am Invited Presentation 5 (Speaker: Branko Bijeljic (Imperial College/ZEISS, UK, remote), presentation title: Pore-scale Imaging and Modelling of Multiphase Flow and Reactive Transport in CO<sub>2</sub> storage)

10:30- 10:50 am Invited Presentation 6 (Speaker: Nima Shokri (Hamburg University of Technology, Germany, remote), presentation title TBD)

10:50 - 11:40 am Round-table discussion among German and Chinese participants. Theme: THMC coupling in CO<sub>2</sub> geological utilization and storage, hosts: Liwei Zhang and Sergey Oladyskin, participants: Hang Deng (Peking University), Wolfgang Nowak (University of Stuttgart)

11:40 am- 14:00 pm Lunch break (Germany)

14:30- 17:00 pm Visit of Porous Media Lab (Germany)

18:00 pm Get together (Germany):  
Restaurant “Brauerei Wirtshaus Sanwald”, Silberburgstraße 157, 70178 Stuttgart

Venue at the University of Stuttgart:  
Pfaffenwaldring 5a, 70569 Stuttgart, Stuttgart Center for Simulation Science.



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## Sino-German Symposium “Opportunities and Challenges in CO<sub>2</sub> Geologic Utilization and Storage”

### Meeting Day 3 - 24.02.2023

Host: Dr. Hesam Bazargan Harandi

Morning: Invited Presentations (Chinese delegates will join remotely; all time slots include 5 minutes Q&A)

8:30-8:50 am Invited Presentation 1 (Speaker: Sebastian Bauer, co-author Firdovski Gasanzade-Institute of Geosciences, University of Kiel, presentation title: CO<sub>2</sub>-storage capacity estimation in the German North Sea sector - early reports on a case study)

8:50-9:10 am Invited Presentation 2 (Speaker: Hang Deng (Peking University, China, remote), presentation title TBD)

9:10-9:30 am Invited Presentation 3: (Speaker: Xuerui Wang (Gesellschaft für Anlagen- und Reaktorsicherheit, GRS), presentation title: CO<sub>2</sub> leakage remediation via Biomineralization-Numerical approach to the coupled processes)

9:30-9:50 am Tea break

9:50- 10:10 am Invited Presentation 4 (Speaker: Nikolaos K. Karadimitriou (University of Stuttgart), presentation title: The role of disconnections in the extended theories for two-phase flow)

10:10- 10:30 am Invited Presentation 5: (Speaker: Yan Wang (IRSM-CAS, China, remote), presentation title: Characterization on CO<sub>2</sub>-induced wellbore cement self-healing under geologic CO<sub>2</sub> storage conditions by SEM, micro-CT and Raman observation)

10:30- 10:50 am Invited Presentation 6 (Speaker: Yuna Cai (Wuhan University, China, remote), presentation title: Numerical simulation of CO<sub>2</sub> wellbore leakage: two case studies in China)

10:50- 11:10 am Invited Presentation 7 (Speaker: Thomas Nagel (Technische Universität Bergakademie): The use of validated constitutive models in THM coupled simulations across solvers)

11:10 am Closing

11:40 am- 14:00 pm Lunch break (Germany)

Venue at the University of Stuttgart:  
Pfaffenwaldring 5a, 70569 Stuttgart, Stuttgart Center for Simulation Science.