

Towards Net-Zero – CO₂-disposal in the Geosphere

Illustrating the risks for humans and life on Earth the IPCC special report (IPCC, 2018) warns of the impacts of a 1.5 °C warming until 2100, i.e. 0.5 °C less than the target of the Paris Agreement. The report also shows that limitation of global warming to 1.5°C compared to pre-industrial levels is possible, if we act now to reach globally net-zero CO₂ emissions by mid-century requiring substantial removal of CO₂ from the atmosphere. While circular carbon approaches involving carbon capture and utilization (CCU) concerns short- to intermediate term removal of CO₂ from the atmosphere, a considerable amount CO₂ needs to be finally disposed. Herein, the geosphere provides a major storage capacity.

The objective of the planned seminar is the identification of the multi-disciplinary aspects with regard to net-zero emissions in 2050, such as

- 1) Potential of CCS/CCU in geosphere
- 2) Future technologies for CO₂ disposal in the geosphere
- 3) Social acceptance of CCS/CCU

A major goal is to discuss the potential for storage and mineralization in the Upper Rhine Graben

Introduction

Wednesday, 11 a.m.

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| March 3 rd , 2021 | Jonathan Banks (University of Alberta) | High-temperature heat storage: thermodynamic equilibrium models for the DeepStor site in the Upper Rhine Graben, Germany |
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March 2021

Tuesdays, 5 p.m.

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| March 9 th , 2021 | Dorothee Siefert (EnBW) | CO ₂ handling in binary geothermal systems – a modelling approach for different CO ₂ contents, TDS and p-T conditions with implications on the geothermal power plant in Bruchsal, Germany |
| March 16 th , 2021 | Martin Saar (ETH Zürich) | Turning CO ₂ into electrons, while permanently storing the CO ₂ |
| March 23 rd , 2021 | Cornelia Schmidt-Hattenberger (GFZ Potsdam) | The Ketzin CO ₂ pilot site - Europe's first and longest operating onshore CO ₂ storage |
| March 30 th , 2021 | Sigurdur Reynir Gislason (University of Iceland) | CO ₂ capture and mineralisation in basaltic rocks |

LINK to the Meeting

<https://kit-lecture.zoom.us/j/62315402392?pwd=c25sYWJrMXBBRjRGYkpwRVNyNXNMQT09>

For further information, please contact Prof. Dr. Eva Schill, eva.schill@kit.edu.