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Registration

To register please send an Email to florian.huber@kit.edu using the subject "**BELBaR course registration**". The deadline for registration is the **23.09.2015**. Please note that there is a limitation in the number of participants (max. 20).

Fee and Accommodation

The participation fee of the workshop is covered by the CP BELBaR project. Please be aware that both travel and accommodation expenses are not enclosed. Hotel rooms will be reserved at the Hotel Anker (http://www.hotel-anker-eggenstein.de/; 65€/night incl. breakfast) close to KIT Campus North.

CP BELBaR Partners

CP BELBaR

Training course:

"Swelling clays: From compacted bentonite to clay colloids in the context of nuclear waste disposal"

Karlsruhe, Germany
October 14 - 16, 2015

Bentonite **E**rosion: effects on the **L**ong term performance of the engineered **B**arrier **a**nd **R**adionuclide transport

KIT – Universität des Landes Baden-Württemberg und
nationales Forschungszentrum in der Helmholtz-Gemeinschaft

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Introduction

The main aim of the BELBaR project is to increase the knowledge of the processes that controls clay colloid stability, generation and ability to transport radionuclides. The overall purpose of the project will be to suggest a treatment of the issues in long-term safety/performance assessment.

Nature and scope of the project

They include national radioactive waste management organizations (WMOs) from a number of countries, research institutes, universities and commercial organizations working in the radioactive waste disposal field. The Collaborative Project (CP) is based on the desire to improve the long-term safety assessments for repository concepts that combine a clay Engineered Barrier System (EBS) with a fractured rock. The formation and stability of colloids from the EBS may have a direct impact of assessed risk from the repository in two aspects:

- Generation of colloids may degrade the engineered barrier

- Colloid transport of radionuclides may reduce the efficiency of the natural barrier: An increased understanding of processes will have an effect on the outcome of future assessments.

Scope of the Training Course

The Training course aims at Master and PhD students as well as early-carrier Postdocs working in the broad field of clay mineralogy and/or nuclear waste disposal. The intention of the Training course is to provide the participants with a sound understanding of clays, clay colloids and their role in the context of nuclear waste disposal. The course comprises both overview and introductory lectures from experts in the field and hands-on training on state-of-the-art analytical techniques used in the characterization of clays, clay colloids and the interaction of clay colloids with radionuclides.

The following analytical techniques will be applied:

- Environmental Scanning Electron Microscopy (ESEM)
- Laser-induced breakdown detection (LIBD)
- Photon correlation spectroscopy (PCS)
- Zeta-potential measurements
- Asymmetric Flow-Field Flow Fractionation (AsFlFF)
- Atomic Force Microscopy (AFM)
- Time resolved laser fluorescence spectroscopy (TRLFS)

General information

Programme

The course will comprise 2 full days (14.10. and 15.10.2015) split into a series of lectures in the morning and laboratory training in the afternoon. Within the lectures the participants will be presented to introductory and background information on the analytical techniques used in the laboratory part of the workshop. Afterwards the participants will have the opportunity to apply the analytical techniques on their own guided by well experienced experts.

In the evening of the first day, a poster session will take place where the participants are given the opportunity to present their research. The second day will end with a joined dinner at a local micro-brewery. On Friday morning (16.10.2015) there will be the possibility to visit the synchrotron facility ANKA at the campus of the Karlsruhe Institute of Technology.

List of speakers/supervisors

- Lucy Bailey (NDA)
- Andreas Bauer (KIT)
- Muriel Bouby (KIT)
- Rassmus Erikson (B+Tech)
- Stepan Kalmykov (LMSU)
- Johannes Lützenkirchen (KIT)
- Tiziana Missana (CIEMAT)
- Ivars Neretnieks (KTH)
- Thomas Rabung (KIT)
- Thorsten Schäfer (KIT)
- Patrik Sellin (SKB)
- etc.

Location

The workshop will be held at the Karlsruhe Institute of Technology (KIT) (www.kit.edu), Campus North, Institute of Nuclear Waste Disposal (INE) (www.ine.kit.edu) which is located ~10km north of Karlsruhe near Eggenstein-Leopoldshafen.