



Contribution ID: 351

Type: **Poster**

In situ triaxial deformation experiments on a sandstone sample for strain investigation at the neutron time-of-flight diffractometer EPSILON

Monday, 17 September 2018 17:45 (15 minutes)

The investigation of uniaxial and triaxial stress states in geological samples serves to a better understanding of the rock behaviour. The application of neutron time-of-flight diffraction allows the study of applied and residual strain of bulk rocks. The neutron time-of-flight strain diffractometer EPSILON at IBR-2M is equipped with a new triaxial pressure device "TRIXI" to investigate polycrystalline rock samples at pressures, representing upper crustal reservoir conditions. Axial pressure up to 150 MPa, confining pressure up to 70 MPa and additional pore pressure up to 70 MPa can be operated, independently. Strain analysis up to d-spacing of 5.3 Å are achievable.

We present the first results using a porous sandstone for in situ strain experiments. This sandstone is considered as reservoir analogue for most of the North German and Dutch gas fields. We compare the results with modelled stress distributions and theoretical expected results.

This new device may be used to address questions on reservoir properties under changing pore pressures, like injection of waste water, geothermal use or production of gas, water, and oil.

Primary authors: SCHEFFZÜK, Christian (KIT Karlsruhe); Dr MÜLLER, Birgit I.R. (KIT Karlsruhe); Mr BREUER, Simon (KIT Karlsruhe); Prof. SCHILLING, Frank R. (KIT Karlsruhe)

Presenter: SCHEFFZÜK, Christian (KIT Karlsruhe)

Session Classification: Poster session 1

Track Classification: P10 Others