# Proposal MSc-Topic:

## Experimental investigation of permeability damage in weakly consolidated sandstones from Hungarian geothermal reservoirs


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Section 4.8 – Geoenergy



**Keywords:**

permeability, porosity, fluid-rock interactions, sandstone, geothermal energy


**Project description:**

In geothermal reservoirs, permeability may be damaged upon injection of the energetically used fluid by a number of processes. These may be of both hydrodynamic and chemical origin relating to fluid-rock interactions. For a particular Hungarian site, an observed permeability decline shall be deciphered by systematic flow-through experiments applying realistic conditions based on provided information. The experiments will be complemented with microstructural investigations of the rock as well as fluid chemical analyses of the effluent. After integration, the obtained results shall provide a statement on the most likely process yielding permeability impairment in this rock when imposing particular flow conditions.

**Requirements:**

- Willingness to conduct hands-on and complex flow-through experiments
- Willingness to work in a laboratory at GFZ in Potsdam
- Flexibility in working hours
- Teamwork capability
- Good communication and writing skills, also in English

**Duration:**

6 months, ideally preceded by 1-2 months experimental training