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GeoLaB - Geothermal laboratory in the crystalline basement

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Geothermal energy is one of the worldwide most important renewable and base load capable energy sources. It will play a major role in the German energy transition process. In Central Europe, the largest geothermal potential resides in the crystalline basement rock with important hotspots in tectonically stressed areas. To meet the necessary energy demand geothermal involves the production of relatively high-flow rates (>10 L/s) from fractured rock. To harvest the geothermal potential in an environmentally sound and economic way, new scientifically founded strategies and technologies are urgently needed.

The proposed new underground research laboratory GeoLaB (Geothermal Laboratory in the Crystalline Basement) addresses fundamental challenges of reservoir technology. The specific objectives of GeoLaB are 1) efficient and safe management of fractured reservoirs, 2) cutting-edge multidisciplinary and multi process research with visualization concepts, 3) developing new environmentally benign strategies for subsurface installations, and 4) transparent interaction with the public and decision makers. The planned experiments will significantly expand our fundamental understanding of processes associated with operational conditions in reservoir structures.

Authors: Dr BREMER, Judith (KIT-AGW); Dr SCHÄTZLER, Katharina (KIT-INE); Prof. SASS, Ingo (TU Darmstadt); Prof. WENZEL, Friedemann (KIT-GPI); Prof. KOLDITZ, Olaf (UFZ); Prof. KÜHN, Michael (GFZ); Prof. KOHL, Thomas (KIT)

Presenter: Prof. KOHL, Thomas (KIT)

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