

1067-86-546

Isabel Ostermann* (osterman@itwm.fraunhofer.de), Fraunhofer ITWM, Fraunhofer-Platz 1, 67663 Kaiserslautern, Germany. *3D-Modeling of Heat Transport in Deep Hydrothermal Reservoirs*. Preliminary report.

From a mathematical point of view, there are three building blocks of deep geothermal power: seismic exploration, modeling transport processes, and modeling the stress field. In particular, local depletion poses a significant risk during the industrial utilization of geothermal reservoirs. In order to reduce this risk, reliable techniques to predict the heat transport and the production temperature are needed. To this end, a 3D-model to simulate the heat transport in hydrothermal systems is developed that is based on a transient advection-diffusion-equation. In addition to the solution theory, a numerical solution method and numerical tests are presented. (Received September 09, 2010)