

Rock Mechanics

Expertise Rock Mechanics, Hydraulic Borehole Testing, Rock Fracture Mechanics Modeling, Hydraulic Fracturing Modeling, Geothermal Energy (HDR), Laboratory Testing of Physical Properties

Education Dr. rer. nat. für Geophysik, 1996
Diplom-Geophysicist, 1990
Ruhr- Universität Bochum, Institut für Geophysik

Professional Affiliations Member: Deutsche Geophysikalische Gesellschaft (German Geophysical Society); Deutsche Geothermische Vereinigung (German Geothermal Association)

Professional Experience

2005 - Present	<i>Itasca Consultants GmbH, Gelsenkirchen, Germany</i>
1996 - Present	<i>Itasca Consultants GmbH, Director</i> <i>Project and Research Engineer</i>
1991B1996	<i>Ruhr-University Bochum (Germany), Institute for Geophysics</i>
1986B1990	<i>Rock Mechanics Group, Scientific Assistant</i>
1991B1996	<i>MeSy GmbH, Bochum, Germany, Consultant</i> <i>Itasca Consultants GmbH, Gelsenkirchen, Germany, Consultant</i>
1990B1991	<i>National Institute for Resources and Environment</i> <i>Tsukuba Science City, Japan, Scientific Assistant, AIST B Fellow</i>
1990	<i>MeSy GmbH, Bochum, Germany, Scientific Employee</i>

Project Experience

Geotechnical Consulting & Modeling: Geotechnical consulting and numerical modeling for several civil engineering projects in Germany, Switzerland and the Czech Republic (foundations, slopes, surface excavations, trenches, dams, surface repositories) and for several mining projects in Germany, Switzerland and Spain; modeling, stability analysis and dimensioning for several tunnel projects in Germany and Switzerland; three-dimensional numerical stress field modeling for radioactive repository sites and civil engineering projects in Switzerland; numerical modeling of dynamic processes (explosions), fracture-mechanics laboratory testing, laboratory and field hydraulic-fracturing experiments, stress fields with regard to geothermal energy, inversion of three-dimensional stress-field data; consulting and modeling for several nuclear-waste repository projects in Germany, Switzerland, Japan, the European Union and the Czech Republic.

Software Development: Participation in parallelization of FLAC3D; implementation of continuum and micro-mechanical constitutive models; development of a shell for an automatically advancing tunnel model in FLAC3D and development of an ANSYS-FLAC3D converter.

Development and modifications for numerical codes for geomechanics, data-acquisition, manipulation and evaluation for hydraulic fracturing experiments, data-evaluation procedures for hydraulic fracturing experiments, development of a hydraulic-fracturing stress databank.

Research & General Engineering: Fracture-mechanics laboratory testing and calculations; various research projects in geomechanics, including interpretation of hydraulic fracturing tests and interpretation of hydraulically induced seismicity, laboratory experiments on rock properties with regard to geothermal energy (Soultz-sous-Forets), experimental determination of elastic and magnetic rock properties and fracture toughness; laboratory and field hydraulic-fracturing testing, participation in the “Integrated Stress Measurement Strategy at the KTB.”