

References / Consulting activities

Prof. Dr. habil. Heinz Konietzky (Germany)

- **Consulting, Stability and Deformation Analysis, Comparative Studies, Feasibility Studies, Support Dimensioning for Tunnels and Drifts in Germany and Switzerland**
e. g. Gotthard-Base-Tunnel, 4th Tube Elbe-Tunnel Hamburg; Tunnel Olpe; Tunnel Lichtenfels; Tunnel Lütgendortmund; Tunnel Berghofen; DB Tunnels for Connection Stuttgart-Augsburg; Waste Water Tunnel Winterhäuser Quelle; Fernthaltunnel of NBS Köln-Rhein/Main; Tunnel for highspeed train route Dresden-Prague
- **Dimensioning, Consulting, Stability- and Deformation Analysis, Feasibility Studies, Support Dimensioning for Underground and Surface Mines as well as Underground Storage Excavations in Germany, Spain and Czech Republic**
e. g. seeling walls, dewatering drifts and slope stability for lignite open pits in the Lausitz-Area; CSM-Coal-Projekt Ostrava; Room-and-Pillar-Excavation scheme for coal mining in Ostrava (Czech Republic); Schist mines in NRW and Rheinland-Pfalz; Gypsum and Limestone Mines in Thuringia, Baden-Württemberg, Brandenburg and Saxony; Old mining in Thuringia, Saxony and Bavaria; Uranium mine Königstein; Limestone cavern Bad Segeberg; Gas storage caverns in salt; Shaft dimensioning for ore mines; Settlement and uplift prediction for the coal mine region Oelsnitz; Limestone mines in Saxony; Salt and potash mines in Germany; Granodiorite mine Grosssteinberg in Saxony; Wolfram mine Mittersill (Austria); Several anhydrite and gypsum mines in Germany
- **Hydrofrac Stress Measurements and Hydraulic Bohrrhole Measurements for different Geotechnical Projects in Germany, in Great Britain and Switzerland**
e. g. Deep Continental Drilling Project Windisch-Eschenbach (Germany); Geothermal Projekt Soultz (France); Bridge- and Tunnel Projects in Hong-Kong; Mining Projects for British Coal, Tunnel Projects in Germany; Lötschberg-Base-Tunnel (Switzerland)
- **Extensive Consulting for the Government of Lower Saxonia in Relation to Geotechnical, Geological, Geohydraulic, Safety, Seismological and Mining Aspects of the Potential Radioactive Waste Project "Konrad"**
- **Consulting, Stability- and Deformation Analysis, Basic Research, Hydro-Thermo-Mechanical Coupled Safety Analysis, 3D Stress Field Calculations for several Potential Radioactive Waste Projects in Germany, Switzerland, Czech Republic, Japan as well as in the Framework of EU-Projekts**
e. g. Waste Disposal Projects Wellenberg (Switzerland), Benken (Switzerland), Mont Terri (Switzerland), Konrad (Germany), Morsleben (Germany), Asse (Germany), Site de Meuse/Haute-Marne (France), Rock Mechanical Laboratory Grimsel (Switzerland), Potential waste repositories NL, ZNO and JO in Switzerland
- **Foundation Consulting and Dimensioning for Structures considering the Soil-Structure Interaction taking into account Hydro-Mechanical Coupling for Projects in Germany, Switzerland and the Czech Republic**
e. g. Transrapid-Project Hamburg - Berlin (Germany); Underground Car Park Ostrava (Czech Republic); TV-3COM-Center Zürich (Switzerland); Nuclear Power Plant Neckar-Westheim (Germany); Bridge Foundation Filstal (Germany); Quayside Antwerpen (Belgium); Watergate Lüneburg (Germany), Port Wilhemshaven (Germany)
- **Stability and Deformation Prediction for Slopes, Waste Dumps and Earth Dams**
e. g. creeping slope at water reservoir Schönbrunn; waste disposals Mettmann, Birkenwerder, and Gehlberg; railway slopes for NBS Köln - Rhein/Main; Natural Theater Rathen; Dam Seebachtal; Dumpsite Neue Sorge Rositz; Open air theater Bad Segeberg; Rock complexes Wehlturn and Bastei; Hydro-mechanical coupled slope failure; Analysis of groundfalls; Analysis and monitoring of rockfall and landslides in Georgia

- **Simulation and Analysis of Effect of Detonations and Explosions as well as Earthquake excitations**
Nuclear explosions of Semipalatinsk test area; Blast simulation during shaft sinking for the Site de Meuse/Haute-Marne (France); Earthquake impact on nuclear power plant foundations; Earthquake excitation of a stadium in Agadir (Maroc)
- **Dimensioning and Basic Research for Geogrids**
Multilayer geogrids for NBS Erfurt - Leipzig/Halle; Fundamental research for behaviour of geogrids under static and dynamic load; Interaction between several geosynthetics; Dimensioning of geotextiles for big waste dumps
- **Seismic / Seismoacoustic Monitoring and Data Interpretation**
Seismic monitoring of mining region Aue (SDAG Wismut); Seismic monitoring during flooding of mining region Aue; Seismic monitoring of geothermal project in Zwickau, Long-term study of urban seismicity for city Dresden, Concept for seismic monitoring of deep geothermal exploration well
- **Development, Implementation and Verification of Geomechanical Constitutive Laws into Explicit Numerical Codes**
e. g. Elasto-plastic and visco-elasto-plastic laws for Salt; HM-coupled elasto-plastic laws for overconsolidated claystones; Hypo-plastic law for soils; Creep law for salt, Elasto-plastic compaction law for crushed salt; Hydration law for concrete; Anisotropic law for crystalline rocks; Backfill law; Swelling law
- **Numerical Simulations in Process Engineering**
e. g. Elevators for Mills; Filling of Chemical Reactors with Catalysts; Flow in Silos; Filling Process of Nappies; Pill Pressing; Backfilling of underground excavations
- **Fracture and Damage Mechanical Simulations in Material Sciences incl. Rocks**
Fatigue and damage of airplane wings; Micro-damage of concrete slabs; Strength of nano materials; Friction and abrasion of break systems; Lifetime prediction of rocks under loading; Cyclic loading of concrete and rocks; Thermal induced crack growth in rocks
- **Geothermal Energy Research**
Rockmechanical, Hydraulic and thermal reservoir and frac simulations; Site characterization; Induced seismicity
- **Restoration of Historical Buildings and Monuments**
Sculptures in Eusebius Cathedral Arnheim (NL); Basement vaults and shafts in Castle Colditz; Restoration of baroque sandstone tomb in Dresden; Risk-assessment of the vacuum conservation technique; Small size monuments in Saxony and both sides along the borderline to the Czech Republic incl. restauration

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