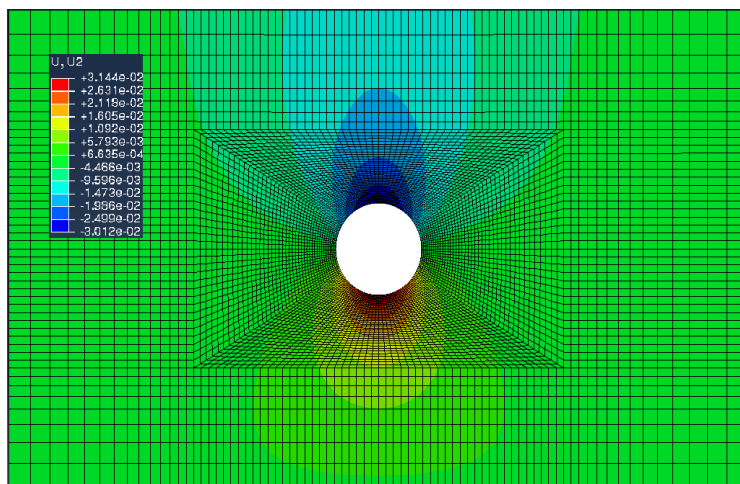


Master's Thesis

Numerical Analyses of a Deep Tunnel Excavation in Rock

Supervisors: M.Sc. G. Neu, M.Sc. N. Gottardi



Background: The lack of space on the surface, especially in urban areas, along with the necessity of building modern infrastructures in impervious areas, have given a remarkable impulse to underground construction development. In the tunnel design phase, numerical simulations and analytical solutions are invaluable tools in order to estimate the behavior of the tunnel and the surrounding rock mass.

In the context of deep tunnels, both 2D and 3D models are generally used to investigate the tunnel response.

Task

- Understanding the rock mass response and the interaction with the structure in an excavation process
- Performing 2D numerical analyses of a deep tunnel
- Analysis of the tunnel-rock mass system using different material models for the rock mass
- Comparison of the results with analytical solutions
- Perform a 3D numerical model of a deep tunnel excavation

Contact:

Nicola Gottardi

Raum: IC 6/175

Lehrstuhl für Statik und Dynamik

Ruhr-Universität Bochum

Tel: 0234-32-29057

Email: nicola.gottardi@rub.de