

Master's Thesis (MT, 30ECTS)

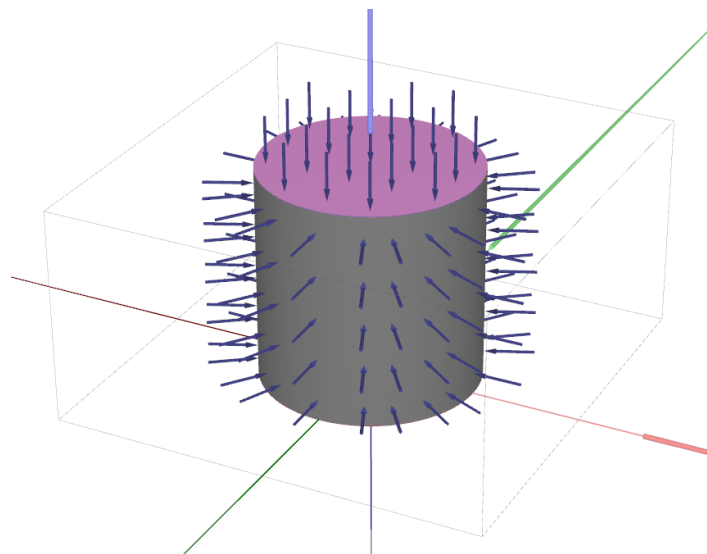
FMT

Working title Modelling of “hard soil – soft rock” by using different constitutive laws

Description

Many engineering problems in geotechnics can be linked to excavations in hard soils or soft rocks (HSSR). Challenges already arise within the characterization of the material in situ, which is fundamental for all (numerical) calculations. Therefore, this thesis is divided into three main parts:

- First, a thorough literature study shall be conducted considering possible constitutive laws for the simulation of the mechanical behaviour of weak rock (e.g. Hardening Soil, Hoek Brown Softening, or similar). Modelling softening phenomena should be discussed including approaches to manage them in the formulation of a constitutive law.
- The second part of the thesis should focus on the calibration and testing of the Hoek Brown Softening (HBS) model with respect to hard soils or soft rocks.
- The third part will focus on numerical simulations and a comparison of the HBS to other constitutive laws. This includes a case study of an underground construction in an urban region, where HSSR-material is typically found and the corresponding mechanical behaviour is of great interest.



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