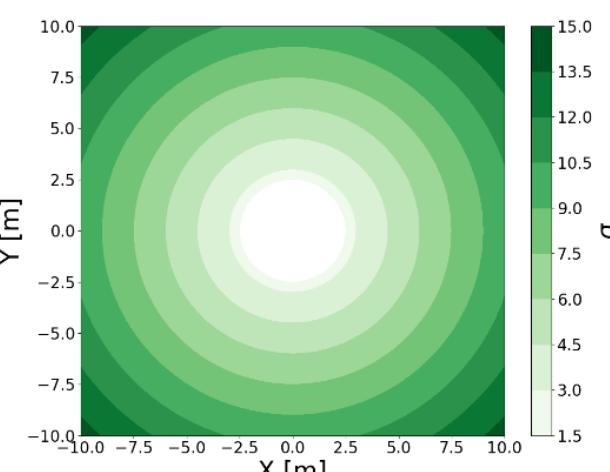


Bachelorarbeit

Implementierung von analytischen Lösungen für Tunnelanalysen und strukturelle Untersuchung von Stützkonstruktionen

Supervisors: MSc. Rodolfo J. Williams M. , MSc. Nicola Gottardi

Background: The availability of analytical solutions for certain tunnel analyses is a valuable tool for a first understanding of the new induced equilibrium conditions in the ground mass due to the excavation of a tunnel. Analytical methods can be used to study the interaction of the ground with the supporting structures (e.g. shotcrete shell, rock bolts, ...), and to investigate the loads acting on them.



Task Description: Within this bachelor thesis the following tasks are to be completed:

- Implementation in Python of analytical solutions of tunnels in 2D conditions. The analytical solutions should be visualized with contour plots. For the visualization a template script will be provided.
- Implementation in Python of the convergence-confinement method. This method provides a first estimation of loads acting on the lining.
- Performing a static analysis of the supporting structure. For the analysis, the loads obtained from the analytical solutions will be applied.

This thesis can be written either in English or in German.

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