Graz University of Technology
Institute of Rock Mechanics and Tunnelling

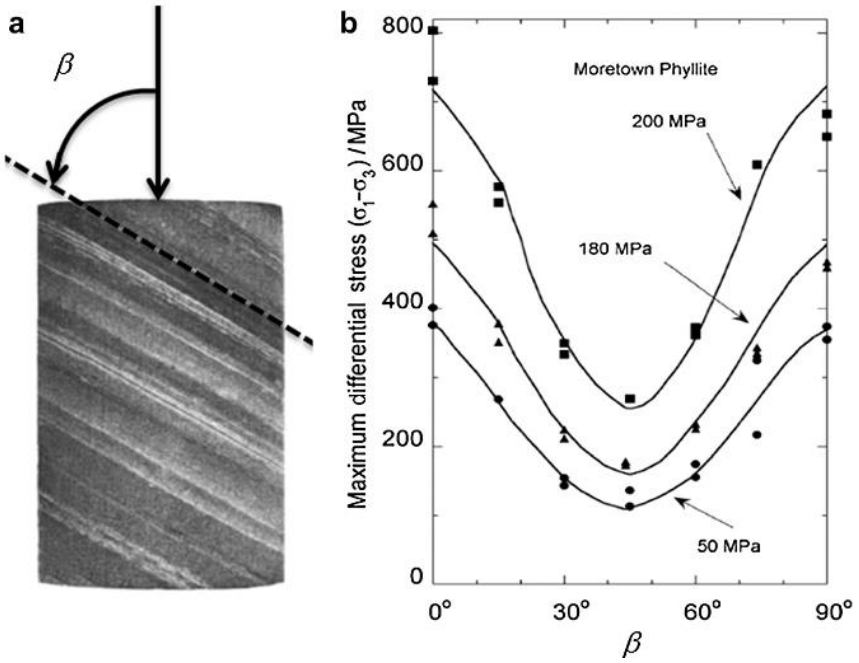
Master's Project (MP, 5ECTS)

Working title Current Approaches in Modelling Anisotropic Behaviour of Soft Intact Rock – A Literature Study

Description

Due to different formation processes, intact rocks, such as shales or phyllites, incorporate certain features which result in an anisotropic mechanical behaviour. Within intact rocks, this behaviour is mainly a result of the grain structure or the stress history experienced by the material.

To make proper predictions of displacements and stresses it is important to use sophisticated anisotropic constitutive models in numerical simulations. Unfortunately, in practice this is not done in many cases, as only rather simple models are commercially available.



Saeidi et al. 2014, A modified failure criterion for transversely isotropic rocks, Geoscience Frontiers 5, 215-225 (as adopted by McLamore and Gray, 1967)

The aim of this work is to summarize available approaches in modelling the anisotropic behaviour of rock materials in the course of a literature study. The results of this work will subsequently serve as basis for the determination of the limitations of current approaches and the development of a new anisotropic constitutive model for soft rock materials to be commercially used.

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