



Universität Stuttgart

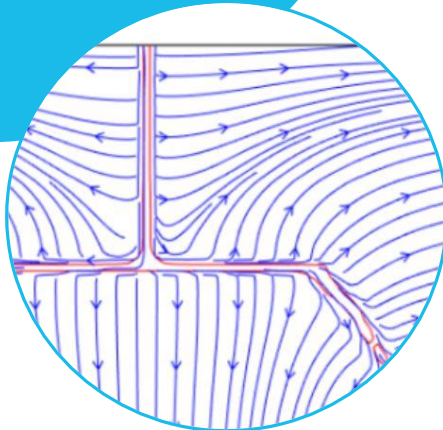
Institut für Mechanik (Bauwesen)

Lehrstuhl für Kontinuumsmechanik

Prof. Dr.-Ing. H. Steeb

Masterthesis

Modelling of dissolved components in fracturing porous media



The following Master thesis is offered at the Chair of Continuum Mechanics at the Institute of Applied Mechanics (CE).

Hydraulic fracturing is a versatile and important procedure for a broad variety of geophysical applications. The coupled behaviour of the multiphase material can be conveniently described on the macroscopic scale within the continuum-mechanical framework of the Theory of Porous Media (TPM). In addition, the fracturing process is modelled with a phase-field approach.

The goal of this Master thesis is to enhance an existing TPM-phase-field model for the description of dissolved components (species) in fractured and fracturing porous media.

Tasks:

- Literature Research
- Development of a TPM-phase-field model with dissolved component(s)
- Implementation and simulation of numerical examples
- Interpretation and discussion of results

Requirements:

- Good knowledge in continuum mechanics and numerical methods
- Good programming skills

Languages:

- English or German

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