

MULTIPHYSICS NUMERICAL MODELLING OF POROUS MEDIA

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Key words: Porous Media, Coupled Problems, Heat and Mass Transfer, Damage Mechanics, Phase Changes, Chemical Reactions.

ABSTRACT

Geomaterials, biomaterials and other porous materials are classified as those with an internal structure and are characterized by a deformable solid skeleton with open and closed pores containing one or more fluids.

In case of open pores these fluids usually are moving with respect to the solid skeleton and interact with each other and with the solid phase, resulting in important mechanical effects. Multiphysics processes are usually involved, among others: fluid and heat transport, diffusion/dispersion of chemical species, interaction with electrical fields, chemical reactions, etc. Often these physico-chemical and mechanical processes take place at different levels of material structure, so a multiscale approach is needed.

This Minisymposium will provide a forum for presentation and discussion of the current state of the art in the field of coupled models for multiphase porous materials and their numerical solution for the analysis of emerging multiphysics problems in civil, environmental, chemical and bio-engineering.