**11th. World Congress on Computational Mechanics (WCCM2014)**
**5th. European Conference on Computational Mechanics (ECCM V)**
**6th. European Conference on Computational Fluid Dynamics (ECFD VI)**
*July 20 - 25, 2014, Barcelona, Spain*

# Advanced techniques for numerical simulation of fluid flow and transport in porous media

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**Key words:** Porous media, Deformation, Discretization methods, MFEM

## ABSTRACT

Flow and transport in porous media have plenty of real world applications. Among them we mention environmental pollution, CO2 storage, oil recovery, nuclear waste management, controlled drug release from polymers, cancer research and so on.

This mini-symposium is devoted to reliable numerical schemes for flow and transport in deformable porous media. Typically, the mathematical models for reactive transport consist of coupled nonlinear partial and ordinary differential equations which may even degenerate. Additionally, if the porous media is deformable we must assume a variable porosity due to processes such as dissolution/precipitation or of soil mechanics. The set up and analysis of numerical methods for such problems is therefore very challenging.

The presentations in this mini-symposium will address important issues in the above framework related to the numerical simulation with an emphasis on coupled reactive flow in deformable porous media. Different discretization techniques will be presented, including mass conservative ones. A special attention will be given to the analysis of the presented schemes.