



Convergence Analysis of Finite Element Discretizations for Biot's Equations

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ABSTRACT

Poroelasticity models the processes of coupled deformable porous media flow which is essential in many applications. In this talk, we consider the discretizations for the Biot's model using lowest order finite elements and address the issue related to the non-physical oscillations in the pressure approximation for low permeabilities and/or small time steps. We introduce a stabilization term which removes the oscillations and show the convergence. Numerical experiments are presented to support our theoretical results. This is a joint work with Carmen Rodrigo (University of Zaragoza), Francisco J. Gaspar (University of Zaragoza) and Ludmil Zikatanov (Penn State University).

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