

A CONSERVATIVE DISCRETIZATION FOR LINEAR POROELASTICITY

GUIDO KANSCHAT

ABSTRACT. Coupling of the flow field and deformation of the solid matrix in linear poroelasticity following Biot's model is conveyed mostly through the divergence of both fields. Therefore, we propose a discretization scheme with improved accuracy and local conservation for the divergence. We will present the basic analysis and first numerical results.

Keywords: Linear poroelasticity, Biot's model, local conservation

INTERDISCIPLINARY CENTER FOR SCIENTIFIC COMPUTING, UNIVERSITÄT HEIDELBERG
E-mail address: `kanschat@uni-heidelberg.de`