1109-65-293 **Yanzhao Cao*** (`yzc0009@auburn.edu`). *Finite element method for flows in poroelasstic media.*

We consider a system of partial differential equations which models flows through elastic porous media. This system consists of an elasticity equation describing the displacement of an elastic porous matrix and a quasilinear elliptic equation describing the pressure of the saturating fluid (flowing through its pores). In this model, the permeability depends nonlinearly on the dilatation (divergence of the displacement) of the medium. In this talk results well-posedness and regularity as well as finite element approximations of the PDE system will be presented. (Received February 03, 2015)