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**Song Chen\*** (chensong250@gmail.com), **Yanzhao Cao** and **A.J. Meir**. *On the equations of quasistatic poroelasticity with dilatation dependent hydraulic conductivity: existence, uniqueness, and finite element approximation.*

The equation of quasi-static poroelasticity modeling a flow through elastic porous media is considered. It is assumed that the hydraulic conductivity depends nonlinearly on the displacement of the medium. Well posedness is proved using the modified Rothe's method. Numerical approximation of solutions based on the finite element method are constructed. Error estimates are obtained and numerical experiments are conducted to demonstrate the theoretical results and the efficiency and accuracy of the numerical method. (Received August 07, 2012)