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R. E. Showalter* (show@math.oregonstate.edu), Department of Mathematics, Oregon State University, Corvallis, OR 97331. *Poroplastic filtration coupled to Stokes Flow*. Preliminary report.

The formulation and the mathematical analysis are given for a model of the exchange of fluid and stress for an elastic-plastic saturated porous structure coupled to the Stokes flow in an adjacent open channel. The coupled systems of partial differential equations and interface conditions are formulated in a mixed variational setting and resolved by nonlinear semigroup methods. (Received September 20, 2005)