

1116-76-1088 **Xiaoming Wang*** (wxm@math.fsu.edu), Department of Mathematics, Florida State University,
Tallahassee, FL 32306. *Flows in Karstic Geometry.*

We present a phase field model for two phase flows in karstic geometry, i.e., situations that involve both flows in porous media and free flows. The model is derived via Onsager's extremum principle. We will discuss the well-posedness, sharp interface limit, numerical analysis and simulation of this model. The talk is based joint work with Daozhi Han and Hao Wu. (Received September 16, 2015)