

TEMPLE UNIVERSITY  
Department of Mathematics

# Applied Mathematics and Scientific Computing Seminar

Room 617 Wachman Hall

Wednesday, 9 October 2013, 4:00 p.m.

## Modeling of Critical Occlusion via Biofilm-Induced Calcite Precipitation in Porous Media

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### **Abstract.**

A model for biofilm induced calcite precipitation with constant head driven flow is presented in the context of a single pore within a porous medium. The model is based on a mixture model including biomaterial, mineral material, and water with dissolved components. Computational results suggest the possibility of critical clogging in the sense that there is a critical pressure head such that for pressure drops below this critical level, pore clogging occurs relatively quickly while for pressure drops above, clogging occurs after much longer times if at all.