

COLLOQUIUM
UNIVERSITY OF PITTSBURGH
FRIDAY, JANUARY 27, 2017

704 THACKERAY HALL

3:30 P.M.

NOEL J. WALKINGTON

DEPARTMENT OF MATHEMATICAL SCIENCES
CARNEGIE MELLON UNIVERSITY

NUMERICAL APPROXIMATION OF
MULTIPHASE FLOWS IN POROUS MEDIA

ABSTRACT: Simulations of geophysical flows involving multiple components undergoing phase transitions only model the gross properties of these flows since a precise description of the physical system is neither available nor computationally tractable. In this context mathematics provides an essential foundation to facilitate the integration of phenomenology and physical intuition with computational algorithms so that codes inherit essential physical properties of the underlying problem. This talk will illustrate how continuum mechanics, thermodynamics, and thought experiments, can be combined to provide insight into models of multicomponent multiphase flow in porous media and their mathematical structure.

Refreshments served at 3:00 p.m.
in the Math Dept. COMMON ROOM, Thackeray 705