

MATHEMATICS DEPARTMENT
North Carolina State University

DIFFERENTIAL EQUATIONS SEMINAR

Thursday, November 20, 2003
2:35 p.m. 330 Harrelson Hall

Dan Marchesin

Instituto Nacional de Matemática Pura e Aplicada
(Rio de Janeiro)

“Modeling permeability hysteresis in two-phase flow via relaxation”

In oil and water flow in a porous medium, certain physical properties that govern the flow are determined not only by the current state, but also by the history of the flow. We present a model for the hysteresis phenomenon in the fluid permeability; this model utilizes a conservation law with diffusive and relaxation terms. We prove that this model captures some essential features of hysteresis that have been observed experimentally.

Graduate students are invited to attend.

For questions, comments, and offers to talk, contact Steve Schecter, schecter@math.ncsu.edu.
Please visit the DE Seminar web page at www.math.ncsu.edu/seminars.html.