

LUNCH SEMINAR FOR GRADUATE STUDENTS

Nonlinear Dynamics of Electrochemical Systems

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ABSTRACT:

This talk will introduce several examples of nonlinear dynamical phenomena in electrochemical systems: (i) Induced-charge electro-osmotic flows in microfluidic "lab-on-a-chip" devices, (ii) phase transformation waves in lithium-ion battery electrodes, and (iii) desalination shocks in porous media. Mathematical models for these systems involve coupled nonlinear PDEs for ion transport, fluid flow, and phase transformations. Numerical solutions are complemented by asymptotic analysis and similarity solutions to provide analytical insights.

MONDAY, NOVEMBER 15, 2010

12:00 Noon

Building 2, Room 147

*Pizza and beverages at 1:00 PM
Building 2, Room 290*

<http://math.mit.edu/seminars/lunchseminar/>