COLLOQUIUM

DEPARTMENT OF MATHEMATICS AND STATISTICS
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A numerical study of a fluid-poroelastic problem

Abstract

Many physical phenomena involve the interaction of a fluid and a poroelastic structure such as the blood vessel interaction. A simple mathematical model for this problem is a coupled problem where blood is described as a free fluid and the vessel wall as a poroelastic medium. The numerical method to solve this problem is based on a decoupling strategy. The coupled fluid-poroelastic system will be cast as a constrained optimization problem with a Neumann type control that enforces continuity of the normal components of the stress on the interface. The optimization objective is to minimize any violation of the other interface conditions. I will present numerical algorithms based on a residual updating technique and show some numerical results to validate the accuracy and efficiency of the proposed algorithms.

Thursday, November 19, 2015
3 – 4 PM
Room 135 Dodge Hall

(Refreshments at 2:30-3:00 PM in the kitchen area adjacent to 368 MSC)