

1161-35-62

George Avalos* (gavalos@math.unl.edu), Department of Mathematics, University of Nebraska-Lincoln, university of nebraska-lincoln, department of, Lincoln, NE 68588. *Qualitative Properties of Multi-Layered Structural Flow PDE.*

In this talk we will discuss a nonstandard Babuška-Brezzi variational formulation and subsequent stability analysis for a multilayered fluid-structure interaction (FSI) system. The composite multilayer PDE system under consideration constitutes a coupling of 3D fluid-2D elastic-3D elastic dynamics, where the coupling of the 3D fluid and the 3D (elastic) wave equation is realized via an additional 2D wave equation on the boundary interface. Inasmuch as the variational formulation is driven by the thick layer-thin layer structure component of the FSI dynamics, and not the fluid component, the argument proposed here for the necessary inf-sup estimate is quite different than that given for uncoupled fluid flows. This is joint work with Pelin Guven Geredeli. (Received August 07, 2020)