

1081-35-220

George Avalos* (gavalos@math.unl.edu), Department of Mathematics, University of Nebraska-Lincoln, Lincoln, NE 68588. *Concerning the uniform of a structural acoustic PDE model.*

In this talk we shall address a longstanding problem of deriving uniform decay rates for a partial differential equation (PDE) system which has been invoked in the literature to model an interior acoustic wave flow, subjected to structurally damped flexural boundary vibrations. By way of describing this phenomenon, the governing PDE will evince a coupling of distinct hyperbolic and parabolic dynamics, this coupling being accomplished across a boundary interface. The novelty in our work will be the attainment of uniform rational decay rates for smooth solutions of the PDE, in the absence of any inserted dissipation on the inactive portion of the boundary. The proof of this result will necessitate the appropriate use of a recently derived stability resolvent criterion of A. Borichev and Y. Tomilov. (Received February 12, 2012)