1067-35-82   **Petronela Radu*** (`pradu@math.unl.edu`), 203 Avery Hall, Lincoln, NE 68588, **Grozdena Todorova**, Knoxville, and **Borislav Yordanov**. *The Diffusion Phenomenon and Decay Rates for Hyperbolic Equations with Damping.*

In this talk I will present an abstract version of the "strong" diffusion phenomenon which shows that the norm of the difference between the solution of the damped hyperbolic equation and the corresponding parabolic equation decays faster than the norm of each of the solutions, when the initial data is suitably chosen. We employ these results to transfer information on the asymptotic behavior between the heat and the damped wave equation when the elliptic operator has unbounded space dependent coefficients. (Received July 20, 2010)

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