

1057-35-179

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Imperfect geometric control and overdamping for the damped wave equation.

In joint work with N. Burq, we study the damped wave equation on a simple manifold with a periodic hyperbolic geodesic and show the energy decays sub-exponentially (with loss in derivative) if the damping controls the manifold geometrically away from the periodic geodesic. This decay rate is sharp, however, if the damping is stronger (overdamped), the decay rate can be improved to exponential. (Received January 21, 2010)