

High Frequency Local Energy Decay for Damped Waves

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Abstract: Local energy decay estimates are a robust measure of dispersion that provide quantitative statements on how waves spread out over time within compact sets. It is well-known that geodesic trapping constitutes an immutable barrier to local energy decay for waves on asymptotically at space-times. We will discuss work on the damped wave equation which demonstrates that local energy decay can be recovered without any loss, even in the presence of trapping, in the high frequency regime at the expense of adding in a new assumption called geometric control. This condition allows us to control trapped trajectories using the damping.