Mathematics > Analysis of PDEs

From resolvent estimates to damped waves

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In this paper we show how to obtain decay estimates for the damped wave equation on a compact manifold without geometric control via knowledge of the dynamics near the un-damped set. We show that if replacing the damping term with a higher-order \emph{complex absorbing potential} gives an operator enjoying polynomial resolvent bounds on the real axis, then the "resolvent" associated to our damped problem enjoys bounds of the same order. It is known that the necessary estimates with complex absorbing potential can also be obtained via gluing from estimates for corresponding non-compact models.

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