1124-35-221 **Jacob S Perry***, Office 362, Phillips Hall CB#3250, Chapel HIll, NC 27514. *Localized energy for wave equations with degenerate trapping.* Preliminary report.

Local smoothing estimates for the Schrödinger equation are well established and show that locally in space and averaged in time, solutions gain one half of a derivative in regularity compared to the initial data. Analogous estimates for solutions to the wave equation, so-called localized energy estimates, have also been studied, and provide a global integrability estimate (in both time and space). When considering such estimates for equations on differentiable manifolds, in either case it is known that geodesic trapping necessitates a loss. For non-degenerate hyperbolic trapping, the loss is logarithmic. For elliptic trapping, everything is lost except a logarithm. Recently, Christianson and Wunsch demonstrated an algebraic loss for solutions to the Schrödinger equation on a surface of revolution with degenerate hyperbolic trapping. In this talk, we will review these prior results and consider the analogue for the wave equation on a warped product manifold with degenerate hyperbolic trapping, attaining an algebraic loss of derivative. We will then use a quasimode construction to show that our estimate is sharp. This is a joint work with Robert Booth, Hans Christianson, and Jason Metcalfe (Received September 09, 2016)