1145-35-2166 **Katrina Morgan*** (katri@live.unc.edu). *Wave decay on asymptotically flat stationary spacetimes.*

The current work considers solutions to the wave equation on asymptotically flat stationary spacetimes in (1+3) dimensions. We investigate the relationship between the rate at which the geometry tends to flat and the pointwise decay rate of waves. We include a weak local energy decay assumption on the evolution of the equation. Geometrically this corresponds to no stable trapping on the manifold (i.e. geodesics which stay within a compact region). The weak local energy decay estimate is also deeply connected to the existence of the resolvent at zero frequency, which is used to obtain the final decay rate. In Tataru 2013 a t^{-3} decay rate was found for the case where the spacetime tends toward flat at a rate of $|x|^{-1}$. We know by Sharp Huygens' Principle that waves decay infinitely fast in the flat setting. Here we obtain pointwise decay for cases in between, where the geometry is curved but tends toward flat at a rate faster than $|x|^{-1}$. (Received September 24, 2018)