1073-35-80   **John A Helms*** (`johelms@email.unc.edu`), John Helms, University of North Carolina at Chapel Hill, CB #3250, Phillips Hall, Chapel Hill, NC 27599, and **Jason L Metcalfe**. *Lifespan of Quasilinear Wave Equations in Exterior Domains.* Preliminary report.

In joint work with Jason Metcalfe, we investigated the lifespan of wave equations of the form $(\partial_t^2 - \Delta)u = Q(u, u', u'')$ in $[0, T] \times \mathbb{R}^3 \backslash \mathcal{K}$, where $\mathcal{K}$ is an exterior domain. Previous results have demonstrated longtime existence in the case that $\mathcal{K}$ was assumed to be star-shaped. In this talk, we will see that the same lifespan holds for more general geometries, where we only assume a local decay of energy with a possible loss of regularity for specific solutions to the linear wave equation. (Received July 27, 2011)