1098-83-94 **Jon A Williams*** (m147242@usna.edu), P.O. Box 15623, Annapolis, MD 21412. *Geodesics and Waves on a Class of Self-Similar spacetimes.* Preliminary report.

In this project we investigate a class of self-similar spacetime metrics given by

$$ds^2 = \mathrm{e}^{2t}\left(g_1(x)\,dt^2 + g_2(x)\,dx^2 + \mathrm{e}^{2x}d\Omega^2\right),$$

where $d\Omega^2 = d\theta^2 + \sin^2\theta d\phi^2$. We investigate special cases where $g_1(x)$ and $g_2(x)$ are specified. Using the Euler-Lagrange equations we find geodesic paths in our spacetime. Classical singularities are studied by analyzing the Riemann and Ricci tensors as well as the Ricci scalar for our metric. Quantum mechanical singularities are studied using the Klein-Gordon scalar wave equation and Maxwell's field equations. (Received January 15, 2014)