

Abstract Submitted
for the APR16 Meeting of
The American Physical Society

Quantum singularity structure of a class of continuously self-similar spacetimes DEBORAH KONKOWSKI, U.S. Naval Academy, THOMAS HELLIWELL, Harvey Mudd College, JON WILIAMS, U.S. Naval Academy — The dynamical, classical timelike singularity in a class of continuously self-similar, conformally-static, spherically-symmetric, power-law spacetimes is probed using massless scalar test fields. Ranges of metric parameters for which these classical singularities may be resolved quantum mechanically are determined; however, the wave operator is shown to be not essentially self-adjoint using Weyl's limit point-limit circle criterion. Thus, unfortunately, in this class of spacetimes the wave packet evolution still has the usual ambiguity associated with scattering off singularities. These spacetimes are not healed quantum mechanically.

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Date submitted: 07 Jan 2016

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