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Resolution of singularities in dynamic spacetimes DEBORAH KONKOWSKI, US Naval Academy, THOMAS HELLIWELL, Harvey Mudd College — Preliminary work on resolving the spacelike scalar curvature singularity in the $r < 2m$ dynamic region of a Schwarzschild black hole using quantum mechanical techniques has not yet been successful. The Horowitz-Marolf criterion of essential self-adjointness that can heal timelike singularities in static and conformally static spacetimes has been extended formally to the Schwarzschild singularity and it is shown to be not essentially self-adjoint, in other words, quantum mechanically singular. In this presentation I will compare these results with recently successful attempts to use quantum field theory techniques to resolve the scalar curvature singularity in Schwarzschild as presented by Hofman and Schneider and quantum mechanical techniques to resolve the scalar curvature ring singularity in overspinning $a > m$ Kerr spacetime as presented by Gurtug and Halisoy. Comments on the relative merits of the techniques will be made.

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