

1145-83-1799

Robert J Abramovic* (rabramo2@gmail.com). *Integrating Factors for Dirac-Schrodinger Operators and Positive Mass Theorems Outside Horizon(s)*. Preliminary report.

A Dirac-Schrodinger operator is simply the Dirac operator plus a zeroth order endomorphism of the spinor bundle. Using an expression for this endomorphism in terms of a basis of the Clifford algebra on the tangent bundle, we will investigate when an integrating factor exists for the associated Dirac-Schrodinger operator. Not only will this allow us to prove existence to solutions of Dirac-Schrodinger equations, but it will also provide a way to obtain a lower eigenvalue bound to Dirac-Schrodinger operators via the Hijazi-Bar argument. This will provide the framework to prove positive mass theorems outside horizon(s) that generalize a result of M. Herzlich to include the non-time symmetric case and charge, as well as holding for a Riemannian manifold of arbitrary dimension. (Received September 24, 2018)