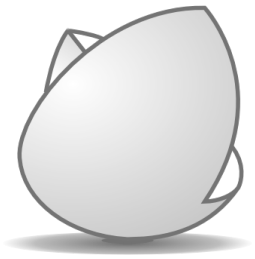

Contribution ID: **12** Type: **not specified**

An index theorem for Lorentzian manifolds with boundary

Thursday, October 13, 2016 10:00 AM (50 minutes)

We show that the Dirac operator on a globally hyperbolic Lorentzian spacetime with compact spacelike Cauchy boundary is a Fredholm operator if appropriate boundary conditions are imposed. We prove that the index of this operator is given by the same expression as in the index formula of Atiyah-Patodi-Singer for Riemannian manifolds with boundary. If time permits, an application to quantum field theory will be sketched. This is the first index theorem for Lorentzian manifolds and, from an analytic perspective, the methods to obtain it are quite different from the classical Riemannian case. This is joint work with Alexander Strohmaier.

Presenter: BÄR, Christian (Universität Potsdam)