

A new short proof of the local index formula of Atiyah-Singer and some of its applications

Rafael Ponge
Department of Mathematics
Ohio State University

Abstract

We will give a new short proof of the local index formula of Atiyah-Singer for Dirac operators by combining Getzler's rescaling with Greiner's approach to the heat kernel asymptotics. We will then briefly explain how similar approaches can be used to deal with a variety of problems in geometry, noncommutative geometry and mathematical physics.