C2 Differential Geometry: Geometric and Spectral Invariants of Riemannian, Lorentzian and Conformal Manifolds

The goal of the project is the study of geometric invariants of manifolds, in particular questions of their construction and classification, their properties in classes of examples and their relationship to spectral geometry. The subjects of investigation include Lorentzian manifolds with special holonomy and Lorentzian homogeneous spaces, conformal invariants and conformally covariant differential operators, the spectrum of the classical Laplace operator as well as differential operators on metric contact and CR manifolds.