

Bismut-Zhang theorem for singular spaces

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Abstract: The famous theorem of Cheeger and Müller states the equality between the analytic (or Ray-Singer) torsion and the topological torsion of a smooth compact manifold equipped with a unitary flat vector bundle. Using local index techniques and the Witten deformation Bismut and Zhang gave the most general comparison theorem of torsions for a smooth compact manifold.

The aim of this talk is the generalisation of the Bismut-Zhang theorem to the context of isolated conical singularities: We first establish a comparison formula between the analytic torsion and a torsion, which we call the Bismut-Zhang torsion. We also establish anomaly formulas for all three terms in the comparison formula, *i.e.* we study how the terms behave under variations of the Riemannian conical metric.