

## **The Cheeger-Müller 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 study of analytic torsion on singular spaces with different types of singularities has been an active field over the past years.

The aim of this talk is to explain a Bismut-Zhang theorem in the context of isolated conical singularities. In the first part of the talk, we recall the statement and history of the Cheeger-Müller theorem on a smooth compact manifold. In the second part of the talk, we explain how to generalise this theorem to singular spaces, using the strategy of Bismut and Zhang. We also explain the generalisation of the Witten deformation to singular spaces, which is one of the main analytical tools in this approach.