

Abstract

Manifolds with fibered cusps are a class of complete non-compact Riemannian manifolds including many examples of locally symmetric spaces of rank one. We study the spectrum of the Hodge Laplacian with coefficients in a flat bundle on a closed manifold undergoing degeneration to a manifold with fibered cusps. We obtain precise asymptotics for the resolvent, the heat kernel, and the determinant of the Laplacian. Using these asymptotics we obtain a topological description of the analytic torsion on a manifold with fibered cusps in terms of the R-torsion of the underlying manifold with boundary.