

SMALL EIGENVALUES UNDER A CUSP DEGENERATION

FRÉDÉRIC ROCHON

On a smooth compact Riemannian manifold, we will study the spectrum of the Laplacian when a hypersurface (with no middle degree cohomology) is pinched to form cusps on both sides. Under such a degeneration, we will show that finitely many small eigenvalues tends to zero. For the Hodge Laplacian, we can also compute explicitly the rate at which they approach zero. This has applications on the study of analytic torsion on manifolds with cusps. This is a joint work with Pierre Albin and David Sher.