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``Geometry and spectral theory of degenerating hyperbolic three manifolds''

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My talk describes joint work with J. Dodziuk:

We study behavior of the spectrum of the Laplacian in a sequence of hyperbolic three manifolds. We allow the possibility that cusps appear in the degeneration, so that the continuous spectrum (Eisenstein series) becomes relevant. We obtain results concerning the asymptotics of spectral determinants, resolvent kernels, small eigenfunctions and eigenvalues, spectral projections, and spectral counting functions.

I will discuss a connection with work of S. Lang in the setting of `degenerating number fields' as well as ongoing work extending our results to infinite-volume hyperbolic three manifolds.