Spectral gaps for large genus hyperbolic surfaces

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Abstract: The study of "small" eigenvalues of the Laplacian on hyperbolic surfaces has a long history and has recently seen many developments. In this talk I will focus on the recent work (joint with Yunhui Wu and Haohao Zhang) on the higher spectral gaps, where we study the differences of consecutive eigenvalues up to λ_{2g-2} for genus g hyperbolic surfaces. We show that the supremum of such spectral gaps over the moduli space has infimum limit at least $1/4$ as genus goes to infinity. The analysis relies on previous joint works with Richard Melrose on degenerating hyperbolic surfaces.