The moduli space of twisted Laplacians and random matrix theory

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Rudnick recently proved that the spectral number variance for the Laplacian of a large compact hyperbolic surface converges, in a certain scaling limit and when averaged with respect to the Weil-Petersson measure on moduli space, to the number variance of the Gaussian Orthogonal Ensemble of random matrix theory. In this talk, I will present joint work with Jens Marklof, where we extend Rudnick's approach to show convergence to the Gaussian Unitary Ensemble for twisted Laplacians which break time-reversal symmetry, and to the Gaussian Symplectic Ensemble for Dirac operators. This addresses a question of Naud, who obtained analogous results for twisted Laplacians on high genus random covers of a fixed compact surface.