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Zeros of linear combinations of L-functions

It is now well known that the characteristic polynomial of a random unitary matrix is a good model for the distribution of the Riemann zeta function and other L-functions. If one takes linear combinations of L-functions then, typically, the zeros cease to be on the critical line. However, if the L-functions share a common functional equation, then Bombieri and Hejhal showed that asymptotically 100% of the zeros of the linear combination still lie on the critical line. In joint work with Yacine Barhoumi-Andreani, Joseph Najnudel and Ashkan Nikeghbali we show that a similar result holds for characteristic polynomials of random unitary matrices.