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Scaling limits of random matrices

The sine and Airy point processes arising from random matrix eigenvalues play a fundamental role in probability theory, partly due to their connection to Riemann zeta zeros and random permutations.

I will describe recent work on the Stochastic Airy and Stochastic sine differential equations, which are shown to describe these point processes and can be thought of as scaling limits of random matrices. This new approach resolves some open problems, *e.g.* it generalizes these point processes for all values of the parameter β .