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Convergence of the stochastic Airy operator to the stochastic sine operator

The Airy and sine point processes describe the behavior of eigenvalues of random matrices from beta-ensembles when scaled at the soft edge and at the bulk respectively. These two point processes can be described as the spectra of two stochastic differential operators called the stochastic Airy and sine operators. It is known that in a suitable scaling limit, the Airy point process converges in distribution to the sine point process. In this talk, we present an operator-level version of this convergence. More precisely, we represent the stochastic Airy and sine operators as random canonical systems, and we show that, when seen as measures, their coefficient matrices converge weakly in distribution. This talk is based on joint work with Elliot Paquette.