

Pair correlation for the Sine-beta process

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We provide a representation for the pair correlation function of the Sine-beta process, the bulk point process scaling limit of beta-ensembles. The representation works for all $\beta > 0$, and expresses the pair correlation in terms of moments of a certain random variable, and also in terms of an infinite system of ODEs. When β is an even integer, we provide additional characterizations in terms of a finite size ODE system and provide the power series expansion near zero. We also report on some new results for the $\beta=6$ case.

Joint with Yahui Qu (UW-Madison).