Mathematics > Probability

A diffusive matrix model for invariant β-ensembles

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We define a new diffusive matrix model converging towards the β-Dyson Brownian motion for all $\beta\in [0,2]$ that provides an explicit construction of β-ensembles of random matrices that is invariant under the orthogonal/unitary group. We also describe the eigenvector dynamics of the limiting matrix process; we show that when $\beta< 1$ and that two eigenvalues collide, the eigenvectors of these two colliding eigenvalues fluctuate very fast and take the uniform measure on the orthocomplement of the eigenvectors of the remaining eigenvalues.

Subjects: **Probability (math.PR)**; Statistical Mechanics (cond-mat.stat-mech)

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