Unitary matrices and probability

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In 2002 I raised the following question: Given a unitary matrix U, does there exist a probability on symmetric group such that the probability of $\sigma(A) = B$ is $|\det U(A, B)|^2$? Here A(or B) is a subset of column(or row) index set and $U(A, B)$ stands for the corresponding submatrix of U. I will discuss the question and its around starting with background results for fermion(or determinantal) point processes.