

Gaussian random permutations and the boson point process

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We construct an infinite volume spatial random permutation associated to a Gaussian Hamiltonian, which is parametrized by the point density and the temperature. Bose-Einstein condensation occurs for dimensions 3 or larger, above a critical density, and is manifest in this representation by the presence of cycles of macroscopic length. We show some properties of these spatial permutations, in particular that the point marginal is the boson point process, for any point density.

This is joint work with Pablo A. Ferrari and Sergio Yuhjtman.