

Spatial random permutations.

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Spatial random permutations are known to be related to Bose-Einstein condensation since the work of R. Feynman in the '50s. In a first result, we show that at high enough temperature there is no condensation for the quenched model: for almost all realizations of the point process the associated measure is supported on finite cycle permutations. Next, we propose an annealed model for the infinite volume random permutation, at both subcritical and supercritical regimes, such that infinite cycles are present only in the condensate phase, as expected. We show that the configuration of points from the random permutation coincides with the previously and independently studied physical point process.

This is joint work with P. Ferrari, N. Frevenza and S. Yuhjtman.