

Random Tilings, Random Partitions and Stochastic Growth Processes
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Phase transitions in random turn walk of hard core particles

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Abstract

We consider a lattice gas model describing random hops of particles, which was suggested by M. E. Fisher. We find connection of this model to classical integrable systems. We have established that the tau function - the central object in integrability - on the one hand generates transition probabilities between configurations of the hard core particles, and, on the other hand, generates “partition functions” for this random model. After finding long time asymptotics, we identify a phase transition w.r.t. a hopping rate of the particles.

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