

The algorithmic Lovász Local Lemma and the Hard Core lattice gas

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Abstract

In this talk we will point out a relation between the Moser-Tardos algorithmic version of the Lovász Local Lemma and the cluster expansion of the Hard Core lattice gas in statistical mechanics. Through this relation we conclude that the Moser-Tardos algorithm is successful in a polynomial time if the cluster expansion converges. Joint work with Aldo Procacci.