

1-2 Model, Dimers and Clusters

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A 1-2 model is a probability measure on subgraphs of a hexagonal lattice, satisfying the condition that the degree of present edges at each vertex is either 1 or 2. We discover an explicit correspondence between the 1-2 model and the dimer model on a decorated graph, and derive a closed form for the local statistics of the 1-2 model on the infinite periodic hexagonal lattice. We prove that the behavior of infinite clusters is different for different local weights, which is an evidence of existence of a phase transition.