PAPER

Transfer matrix for spanning trees, webs and colored forests

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Abstract

We use the transfer matrix formalism for dimers proposed by Lieb, and generalize it to address the corresponding problem for arrow configurations (or trees) associated to dimer configurations through Temperley's correspondence. On a cylinder, the arrow configurations can be partitioned into sectors according to the number of non-contractible loops they contain. We show how Lieb's

transfer matrix can be adapted in order to disentangle the various sectors and to compute the corresponding partition functions. In order to address the issue of Jordan cells, we introduce a new, extended transfer matrix, which not only keeps track of the positions of the dimers, but also propagates colors along the branches of the associated trees. We argue that this new matrix contains Jordan cells.

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