Wave Function Prediction: a Classical Background

Tomotoshi NISHINO

Department of Physics, Faculty of Sciences, Kobe-University, Kobe 657-8501

We report a physical background of the wave function prediction in the infinite system density matrix renormalization group (DMRG) method,[1]-[4] from the view point of two-dimensional vertex model,[5] a typical lattice model in statistical mechanics. Singular value decomposition applied to rectangular corner transfer matrices naturally draws matrix product representation for the maximal eigenvector of the row-to-row transfer matrix. The wave function prediction can be expressed as the insertion of an approximate half-column transfer matrix. This insertion process is in accordance with the scheme proposed by McCulloch.[1]

References

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