

# Higher-order tensor renormalization group with the all-mode technique

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We propose an all-mode technique for Higher-Order Tensor Renormalization Group (HOTRG) by introducing a general framework for all-mode averaging in the coarse-graining step, utilizing a squeezer transformation. Since the all-mode approach yields numerical results that contain only statistical errors and are free from systematic errors, our results could be directly compared with exact solutions without ambiguity arising from systematic deviations. We demonstrate the proposed method in the two-dimensional Ising model, showing agreement with exact results, and discuss its extension to three dimensions.

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