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Diagonalizing the Hamiltonian of lambda phi^4 Theory in 2 Space-Time Dimensions

We discuss the diagonalization of the field theory hamiltonian by truncating the Hilbert space and using standard numerical diagonalization techniques. We show results of using this method in a simple $\lambda\phi^4$ theory. We discuss the long-term goal of using this diagonalization technique to calculate the S-matrix elements non-perturbatively. Finally, we briefly discuss Monte-Carlo and Simulated-Annealing methods for moving beyond the memory and computational limitations on the size of the Hamiltonian accessible to numerical diagonalization. This talk is based on arXiv:1603.01273.

Summary

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