report for exact input

icf

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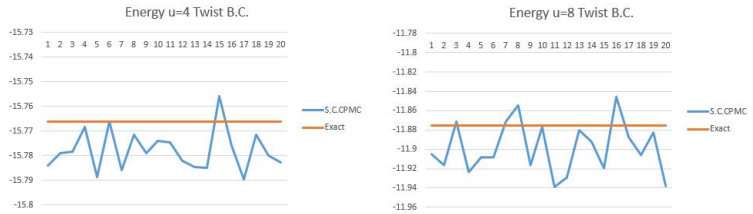
1 Introduction

This is a report about Energy and Density Matrix changing along the S.C.CPMC steps with Exact Input.

The systems: 4 by 4 Hubbard Model with Twist B.C. (0.01,0.02) U=4 and U=8.

ED is used to give Exact Ground State Energy and Density Matrix. The Exact Density Matrix is used as the density matrix to produce initial Trial Wave Function.

2 Results

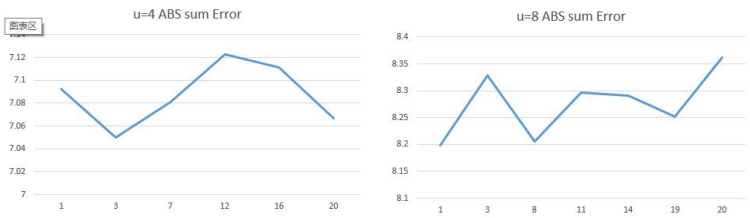


(a) (b)

Figure 1: The y-axis is the GS Energy and x-axis is the step in S.C.CPMC.

3 Discussion

These results are different with those results in S.C.CPMC paper. These results above show that the S.C. error comes from the first step where the decomposition method is not exact so that even though we have the exact Density matrix we can not still get the exact results in S.C.CPMC. And lucky thing is that the error won't go too far after iterations.



(a) (b)

Figure 2: The y-axis is the ABS sum Error (the sum of the absolute error of density matrix with Exact density matrix) and x-axis is the step in S.C.CPMC.