Exercises for Computational Physics (physik760)
WS 2019/2020

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Exercises for the week from 16th to 20th of December 2019.

Ising Model

1: Ising Model:
During last week's exercise you have implemented the Hamiltonian for the $d = 2$-dimensional Ising model with nearest neighbour interactions. Moreover, you have implemented $\Delta H = H(s) - H(s')$, where $s = \{s_1, \ldots, s_j, \ldots\}$ and $s' = \{s_1, \ldots, s'_j, \ldots\}$, i.e. they differ only at a single lattice site.

In this exercise we will expand on this: use the functions implemented last week to implement a Random-Walk Metropolis-Hastings algorithm for the Ising model at temperature T.