1 HW 1: Simulation of the 1-D Ising model

Your total number of points for this homework is (19/20 P). If you have any questions feel free to write me an email (s6nnschl@uni-bonn.de).

Exercise 1: Physical Meaning of J

Correct (3/3 P)

Exercise 2: Periodic Boundary Conditions

You would rather say that "periodic boundary conditions" means that

$$\mathcal{H}(s) = -J \sum_{i=0}^{N-1} s_i \, s_{i+1} - h \sum_{i=0}^{N-1} s_i, \tag{1}$$

is considered with $s_N \equiv s_0$. But (1/1 P) for your description of the concept.

Exercise 3.1: Dimensionless Ratios

Correct (1/1 P)

Exercise 3.2: Dependency of $\langle m \rangle$ on h

Your corresponding graph shows this dependency well. However, you were also asked to compute (and plot) the numeric error for each h. (1/1 P)

Exercise 3.3: Dependency of $\langle m \rangle$ on N

Correct (1/1 P)

Exercise 3.4: Comparison with Analytic Result for $N < \infty$

The comparison is in the corresponding plot. (1/1 P)

Exercise 3.5: Comparison with Analytic Result for $N \to \infty$

The comparison is in the corresponding plot. (1/1 P)

Exercise 3.6: Error Analysis

In your submission an error calculation is missing. (0/1 P)

Exercise 3.7: Error Analysis, Discussion and Code

- In contrast to 3.3 the discussion for 3.2 is missing (no point deduction here).
- Your code is clearly structured and provided with comments

So in total (10/10 P).