

Problem Set 5

Exercise 1: iTEBD

- Consider the 1D **spin-1** Heisenberg chain

$$H = \sum_j \vec{S}_j \cdot \vec{S}_{j+1}$$

- Implement Vidal's iTEBD algorithm and compute the **ground-state energy** of the spin-1 Heisenberg chain.



- Compute the entanglement spectrum from the converged MPS. Do you see a **two-fold degeneracy**?

