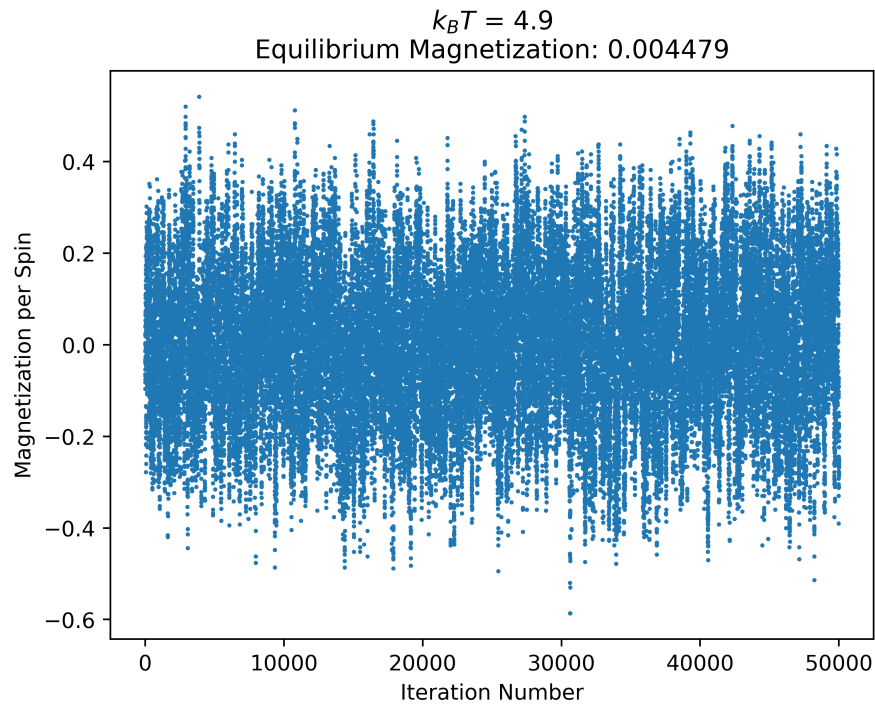# Assignment 3

Vignesh M Pai (20211132)

1

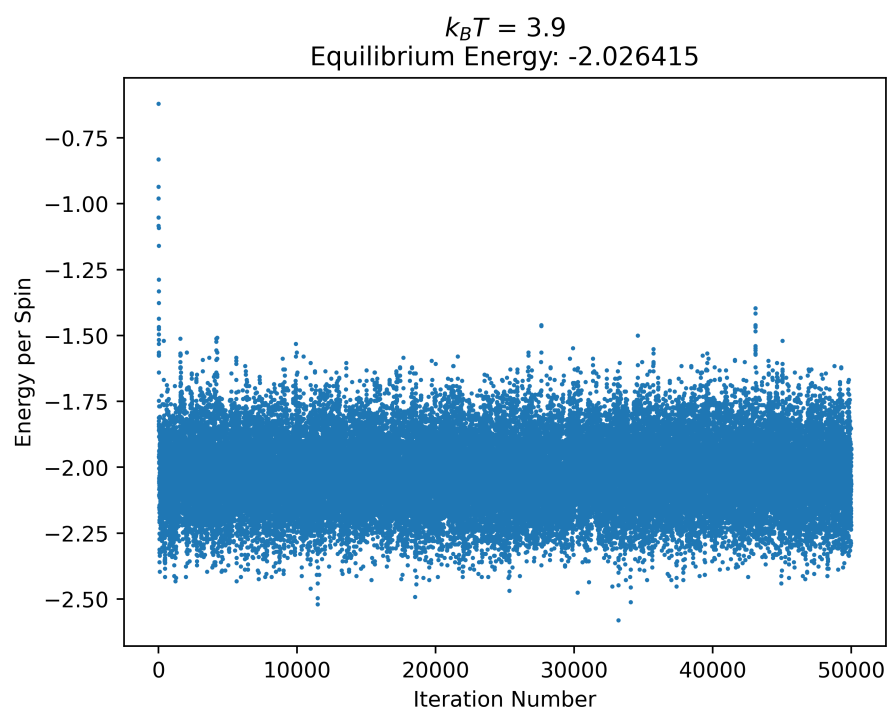The total magnetic moment will be $-L^3$ or -8000.

2

The number of interactions is 4 per spin and thus $4L^3/2 = 2L^3$. Since all interactions will contribute to $-J$ interaction energy, the total energy will be $-2JL^3 = -2000$.

3

4

$k_B T = 3.9$
Equilibrium Energy: -2.026415

5

$k_B T = 4.05$
Equilibrium Magnetization: -0.730059
Equilibrium Energy: -1.843288

$k_B T = 3.9$

$k_B T = 3.9$