

Problem in Project2 : Solving for the Curie Temperature of a 2D Ising model by Monte Carlo

Grading system:

- a) 75% for Content & Results (numerical solutions, etc.);
- b) 15% for Presentations (Graph labelling, Number of data points, etc.);
- c) 10% for Code efficiency (Choice of methods, algorithm, etc.)

Results(17pt):

Part1 - Thermalization (5pt)

- (2 pt) Plot total energy as a function of time (N=20 & N=40)
 - (2 pt) Approximate the thermalization period (N=20 & N=40)
 - (1 pt) Thermalization time increases as N increases
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Part2 - Observables of Ising Model (9pt)

Results:

Plot of observables as a function of Temperature for N=10,20,50

	Energy	Magnetization	Heat Capacity	Magnetic Susceptibility
Points	2pts	2pts	2pts	2pts

Observation:

- (1 pt) How do the observables change as Temperature increases?
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Part3 - Curie Temperature (3pt)

Results:

- (1 pt) Value of Curie Temperature
- (1 pt) Justification of thermalization near Curie Temperature
- (1 pt) Which observable gives the clearest signature?