Advanced Monte Carlo: Ising Model

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Contents

1 Introduction

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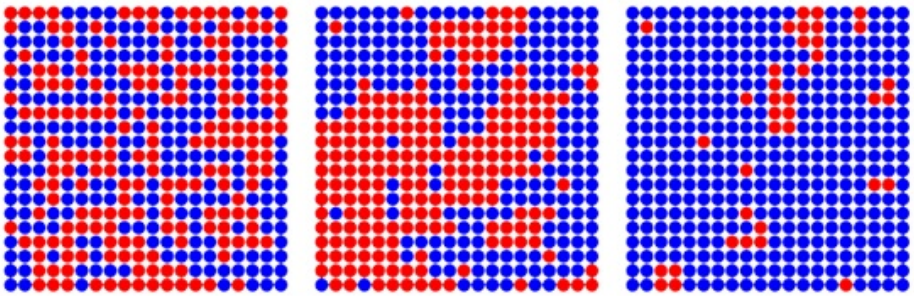
1.1 Ising Model

Figure 1: Sample of the vis we want



1.2 Initialization

1.3 Wolff Algorithm

1.4 Calculations

1.4.1 Magnetization

1.4.2 Magnetic Susceptibility

$$\chi = \frac{d(Magnetization)}{dT} \tag{1.4.1}$$

1.4.3 Critical Temperature

1.4.4 Internal Energy

$$E = -J \cdot \Sigma_{<i><j>} S_i S_j \tag{1.4.2}$$

1.4.5 Heat Capacity

$$C_V = \frac{dE}{dT} \tag{1.4.3}$$

1.4.6 Critical Exponents

2 Results

2.1 Magnetization

2.2 Magnetic Susceptibility

2.3 Critical Temperature

2.4 Internal Energy

2.5 Heat Capacity

2.6 Critical Exponents

3 References

References

[1] Thijssen, J. M. *Computational Physics*. Ch. 8. Cambridge University Press. 1999. Print.