1 Monte Carlo start

2 Closed form expression

The local energy for the simple trialfunct

$$Z\left(-\frac{1}{r_2} - \frac{1}{r_1}\right) - \alpha^2 + \alpha\left(\frac{1}{r_2} + \frac{1}{r_1}\right) + \frac{1}{r_{12}}$$

3 Methodology

An improvement to the Metropolis algorithm is to implement importance sampling, where the sampling algorithm works to increase the sampling at important areas and decrease the sampling at unimportant areas.