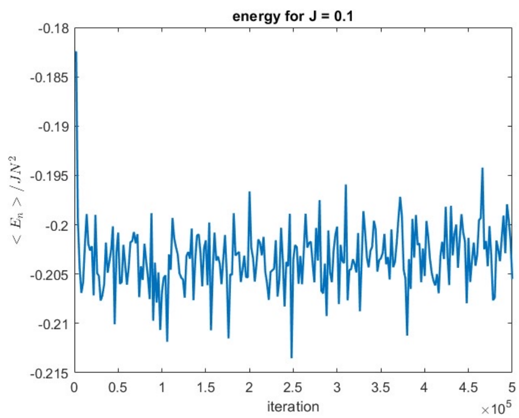
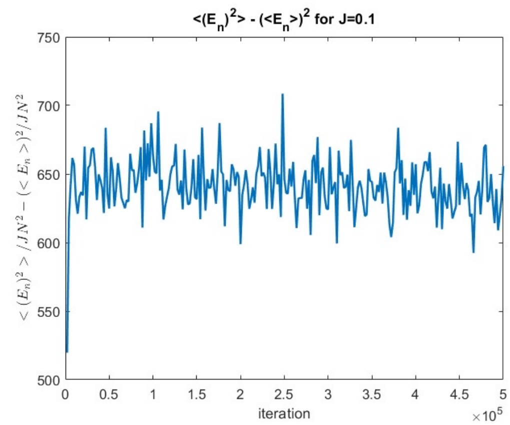
for $J = 0 \cdot 1$:

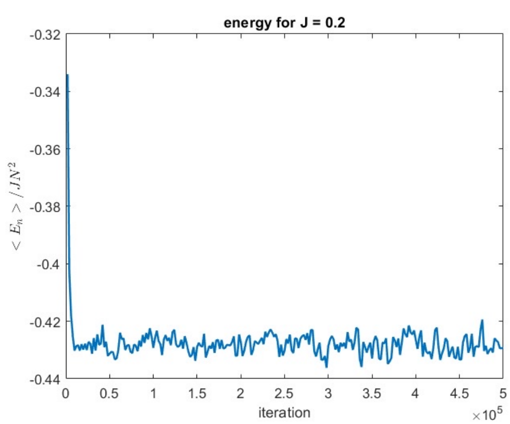



(a) Energy as a function of iteration number

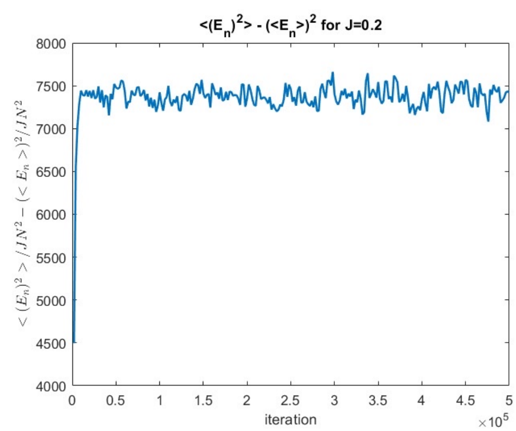



(b) Fluctuations in Energy $\langle E_n^2 \rangle - \langle E_n \rangle^2$ as a function of iteration number

for $J = 0 \cdot 2$:

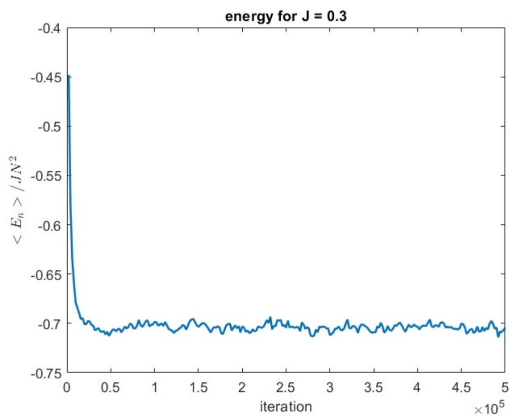



(a) Energy as a function of iteration number

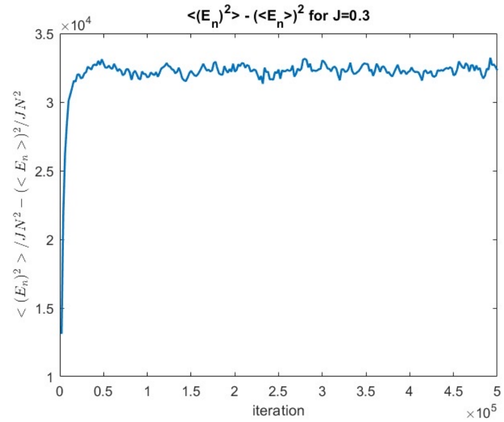



(b) Fluctuations in Energy $\langle E_n^2 \rangle - \langle E_n \rangle^2$ as a function of iteration number

for $J = 0.3$:

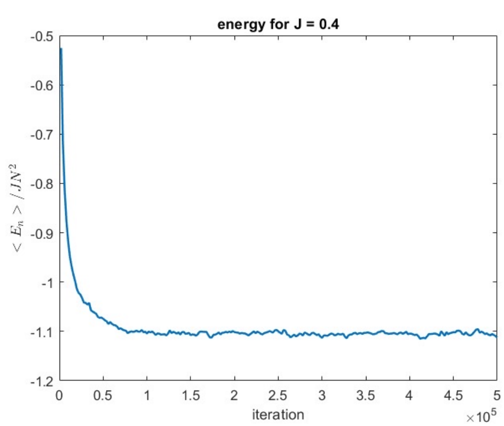



(a) Energy as a function of iteration number

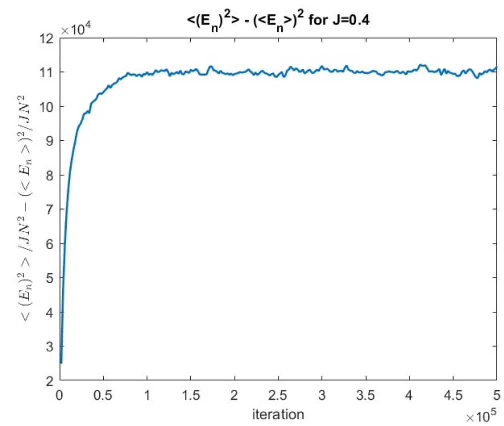



(b) Fluctuations in Energy $\langle E_n^2 \rangle - \langle E_n \rangle^2$ as a function of iteration number

for $J = 0.4$:




(a) Energy as a function of iteration number




(b) fluctuation in Energy $\langle E_n^2 \rangle - \langle E_n \rangle^2$ as a function of iteration number from all the (b) figures that have been shown above, we can argue that after a certain no. of iterations the fluctuation of energy reaches at equilibrium and then fluctuates from the mean value as "n" changes. So, we can conclude fluctuations of energy don't depend significantly on "n".

On the other hand, with increasing value of J from 0.1 to 0.4, the fluctuation of energy vary in orders of magnitude respectively. So, Energy fluctuation has a significant dependence on "J"