The MATLAB files for this work:

- *randomwalks.m* is a code to generate N-step self-avoiding random walks (SARWs).
- *Radius-gyration.m* is a code to calculate the Radius of gyration for each SARW.
- *meanRg* is a code to obtain the average of radius of gyration for w SARWs.
- *plot-meanRg-vs-N.m*: In this code, we get the mean radius of gyration for different values of N. Then, we plot the mean radius of gyration against N. By running this code, you can get the figure of mean radius of gyration againt N.

Fig. 0.1 shows mean radius of gyration as a function of N for different values of w. It shows that as w increases the mean radius of gyration becomes smaller.

While writing this report, I just realized that in each run of my program the value of w is constant for all value of N. So I think I can't say anything for the relationship between w and N. I have to work on it. Do we have to see low fluctuations for a specific value of w?

I did a power fit for one of figures of mean Radius of gyration vs.N to see how the radius of gyration changes with N (fig. 0.2). I got this: $Rg \sim N^{0.2827}$.If you compare this with the case of normal random walks ($Rg \sim N^{0.5}$), you see that the exponent gets smaller.

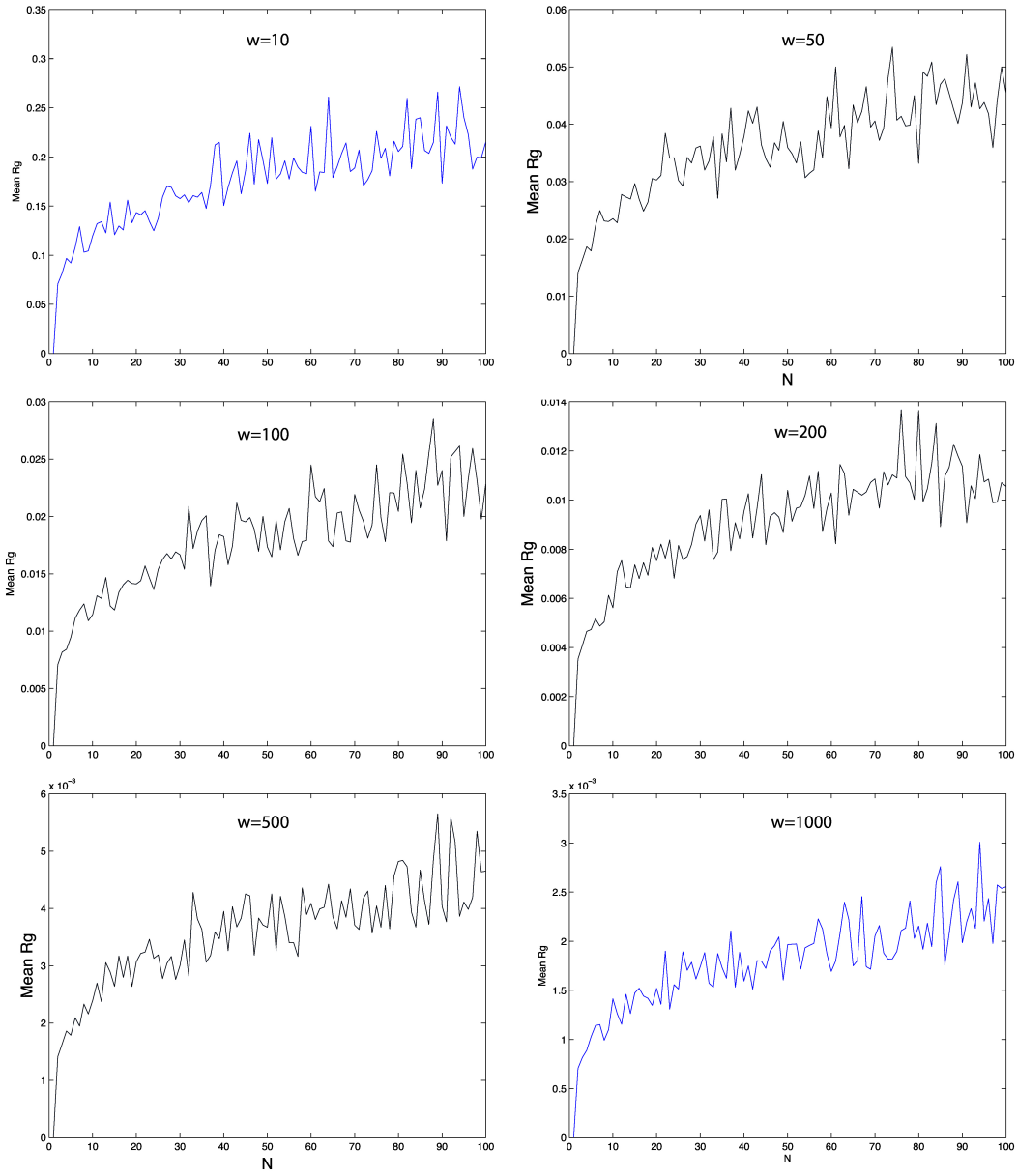

Figure 0.1: Mean radius of gyration as a function of N for different values of w.

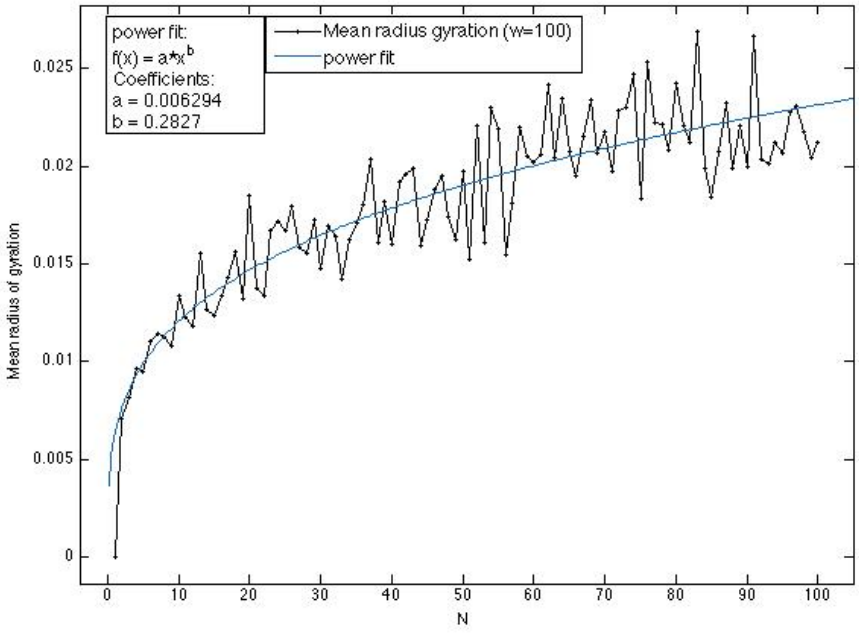

Figure 0.2: A power fit to MeanRg vs. N