**Problem:**

This assignment builds on your solution of home assignment 03. Your task is to compute, by the Monte Carlo method, the relative change in the distance the fission neutron flies to its first collision when the atomic concentration of the material is increased by 0.01% (compared to the concentration that you selected in home assignment 03).

- First, try to compute this result by running two independent simple sampling simulations (at the two different atomic concentrations). Repeat the experiment and evaluate the standard deviation of the relative change of the distance the fission neutron flies to its first collision.

- Second, compute the result by the correlated sampling method. Evaluate the standard deviation of the result and compare it to the result you got in the first part of this assignment.