Homework 28.05.2021

A) Download the code from the webpage with the name "Glauber.cc"

The Woods-Saxon nuclear density is given by: $\rho(r) = \dfrac{\rho_0 \left(1 + wr^2/R^2\right)}{1 + \exp((r - R)/a)}$

The function is already implemented in the provided code. For "Au" the function is already defined. Add the functions for "O" and "U" (table with parameters see lecture).

Modify the "w" parameter for Au to 0.3. Plot all curves in the same pad. Add another function (a small modification of "Func_Woods_Saxon") to integrate ("Double_t integral = f->Integrate(0,10)") the above Woods-Saxon functions over the full Volume. Compare the results with the "A" values from the table.

B) The second part of the code is about Monte-Carlo Glauber. The code is complete for a single collision at one fixed impact parameter. It also shows in 3D the nucleons.

Complete the code in order to calculate N_{part} and N_{coll}. Use the hints given in the code.