Group Activity 16

Due: In class, October 26th

- 1. Suppose we want to want to calculate the ⁷⁶Se+ α capture cross section using the Hauser-Feshbach formalism. Of the following quantities, which will we need to know, which will we not need to know, and why:
 - (1) α -optical potential for ⁷⁶Se
 - (2) neutron-optical potential for 79 Kr (since 76 Se(α ,n) makes 79 Kr)
 - (3) proton-optical potential for ⁷⁹Br (since ⁷⁶Se(α ,p) makes ⁷⁹Br)
 - (4) γ -strength function for ⁷⁶Se
 - (5) Nuclear level density for ⁷⁶Se
 - (6) Nuclear level density for ⁷⁹Kr
 - (7) Nuclear level density for ⁷⁹Br

2. Suppose you don't have an α -beam at your accelerator facility. Instead, you have either protons or carbon. Which one would you choose to try to measure a spin-cutoff parameter for a nucleus using the angular distribution of a particle evaporation spectrum? Why?