Nuclear Lunch Questions for 9 October 2013

Halo Nucleus 11Be: A Spectroscopic Study via Neutron Transfer

1). What is the cross section? What is inverse kinematics and why is it useful in this case? What is a direct reaction? Would there be errors if some other reactions mechanism (such as compound nucleus formation) was present? **(Nick)**

2). What is a spectroscopic factor? Why is it not experimentally observable? What is the physical significance of the spectroscopic factor? How does a spectroscopic factor provides information about the structure of nuclei? **(Brian)**

3). How does the ADWA include break-up effect? **(Anthony)**

4). How were particles detected using SIDAR? Are there any sample spectra from this experiment (or others) to show the detectors capabilities? **(Bijaya)**

5). Why did they use a deuterated Polyethylene target? What are the reasons for selecting the deuteron energies of 12, 15, 18, and 21 MeV? **(Cody)**

6). How does setting the analyzing magnet to Z=4 filter for ^{10}Be? If we wanted ^{10}Be instead, what should the magnet be set to? **(Mongi)**

7). What is optical potential and why is it called optical? In DWBA what are the distorting potential and the coupling potential? **(Arbin)**

8). Why is there a tensor product between the two states? How do we geometrically interpret it? **(Norman)**