

PHYS 3446 – Lecture #8

Monday, Oct. 2, 2006

Dr. **Jae** Yu

1. Nuclear Models

- Shell Model
- Collective Model
- Super-deformed Nuclei

2. Nuclear Radiation

- Alpha decay
- Beta decay



Announcements

- First term exam
 - Date and time: 1:00 – 2:30pm, THIS Wednesday, Oct. 4
 - Location: SH105
 - Covers: Appendix A (special relativity) + CH1 – CH3
- Workshop was very successful
 - We've all learned tremendously
 - We know what we want to do at the next workshop



Nuclear Models: Shell Model

- Exploit the success of atomic model
 - Uses orbital structure of nucleons
 - Electron energy levels are quantized
 - Limited number of electrons in each level based on available spin and angular momentum configurations
 - For n^{th} energy level, l angular momentum ($l < n$), one expects a total of $2(2l+1)$ possible degenerate states for electrons

