Phys 522   Quantum Mechanics II   **Spring 2010**

Homework Assignment #4   **Due Tuesday, March 23**
(20 points)   **(at lecture)**

4.1 (10 points) Estimate how the fine-structure energy shifts due to W_{mv}, W_{SO}, and W_D scale with the principle quantum number n. Which of the three shifts dominates for large n? Estimate the size of the fine-structure frequency shift for a Rydberg atom with $n = 50$.

4.2 (10 points) Challenge problem.