

Applied Physics 114c: Homework #1

(Dated: April 8, 2016)

Due: Friday, April 15th (box outside Watson 268, anytime before midnight)

1. Reading

Chapter 31 in Ashcroft and Mermin (AM), Chapter 14 of Kittel (CT). You may also want to take a look at the Ch1 and Ch2 handouts from the AMO physics class (8.421) given at MIT.

2. **(10 points)** Ch. 31 of AM, Problem #2

3. **(10 points)** Ch. 31 of AM, Problem #3

4. **(10 points)** Ch. 31 of AM, Problem #4

5. **(10 points)** Ch. 31 of AM, Problem #5

6. **(10 points)** Ch. 31 of AM, Problem #7

7. **(10 points)** Apply Hund's rules (showing steps/table) to find the ground state of: (a) Yb^{3+} ,
(b) Er^{3+}