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Course: **8.333 - Statistical Mechanics I**
Problem set: **#6**

1. Numerical Estimates.

(a) For a typical metal, the ratio of the electron and phonon heat capacities at room temperature is

$$blah$$

(b)

(c)

(d) **(Optional)**

2. Solar Interior.

(a)

(b)

(c)

(d)

3. Density of States.

(a)

(b)

(c)

(d)

(e)

4. Quantum Point Particle Condensation.

(a)

(b)

(c)

(d)

(e)

5. Harmonic Confinement of Fermions.

(a)

(b)

(c)

(d)

(e)

(f)

6. Anharmonic Trap.

(a)

(b)

(c)

(d)

(e)

(f)

7. (Optional) Fermi gas in two dimensions.

(a)

(b)

(c)

8. (Optional) Partition of Integers.

(a)

(b)

(c)

9. (Optional) Fermions pairing into Bosons.

(a)

(b)

(c)

(d)

10. (Optional) Ring Diagrams Mimicking Bosons.

(a)

(b)

(c)

(d)

11. (Optional) Relativistic Bose Gas in d-dimensions.

(a)

(b)

(c)

(d)

(e)

12. (Optional) Surface Adsorption of an Ideal Bose Gas.

(a)

(b)

(c)

(d)

13. (Optional) Inertia of Superfluid Helium.

(a)

(b)

(c)

(d)