

**Phys 402**  
**Spring 2019**  
**Homework 9**  
**Due Friday, April 26, 2019 @ 9 AM**

1. Griffiths, 2<sup>nd</sup> Edition, Problem 5.22 or Griffiths 1<sup>st</sup> Edition, Problem 5.19 (pages posted on class website)

[more fermion and boson wavefunctions, in context of statistical quantum mechanics]

2. Griffiths, 2<sup>nd</sup> Edition, Problem 5.23 or Griffiths, 1<sup>st</sup> Edition, Problem 5.20 (pages posted on class website)

[more on statistical quantum mechanics: calculating probabilities of particle configurations]

3. Griffiths, 2<sup>nd</sup> Edition, Problem 5.26 or Griffiths, 1<sup>st</sup> Edition, Problem 5.23 (pages posted on class website)

[Lagrange multiplier examples]

4. Griffiths, 2<sup>nd</sup> Edition, Problem 5.29 or Griffiths, 1<sup>st</sup> Edition, Problem 5.26 (pages posted on class website)

[Bose-Einstein condensation]

5. Griffiths, 2<sup>nd</sup> Edition, Problem 5.30 or Griffiths, 1<sup>st</sup> Edition, Problem 5.27 (pages posted on class website)

[Wien displacement law]

6. Griffiths, 2<sup>nd</sup> Edition, Problem 5.31 or Griffiths, 1<sup>st</sup> Edition, Problem 5.28 (pages posted on class website)

[Stefan-Boltzmann formula]

7. Griffiths, 2<sup>nd</sup> Edition, Problem 5.37 or Griffiths, 1<sup>st</sup> Edition, Problem 5.33 (pages posted on class website)

[Distinguishable particles in harmonic potential - Hint: To calculate the degeneracy of state  $E_n$  of the 3D harmonic oscillator you have to answer the question: "How many ways can we add three non-negative integers to get sum  $n$ ?"]