

**Physics 221A**  
**Fall 2016**  
**Homework 4**  
**Due Friday, September 23, 2016**

**Reading Assignment:** Notes 5, Notes 6, and Notes 8, Secs. 1–4. We will skip Notes 7 for lack of time. Supplementary reading: See also Commins, Secs. 4.6–4.9 and 6.1, 6.3, 6.4, 6.8, 6.9 and 6.10. In lecture we only talked about the double well potential in general terms, but Commins discusses the examples of the ammonia molecule and the hydrogen molecular ion,  $\text{H}_2^+$ .

Please do Problems 5.1, 5.3, 6.1, 8.2.

**Warning:** I have been updating the notes. Most of the changes are fairly small, but it does change some equation and section numbering. If you have printed out copies of the notes, they may not be up to date. The latest versions is on the web site. The problem numbers referred to here are the ones in the latest version of the notes.