

Physics 129b  
Problem Set Number 6  
Due Wednesday, February 20, 2008

Reading: Read chapter 6 of Wu-Ki Tung, on one-dimensional continuous groups. Just skim most of it, but pay closer attention to sections 6.4-6.7. Also skim chapter 7, paying more attention to sections 7.2-7.3 and 7.8. If your background on angular momentum in quantum mechanics is weak, or you have been having difficulty following our discussions on the example of the rotation group, you may wish to read the other sections more carefully. We will come back to the material of chapter 5 later. Begin reading the note on Lie groups and Lie algebras linked to the web page.

23. Exercise 5 in the note on Representation Theory.
24. Exercise 15 in the note on Representation Theory.
25. (Worth two problems) An application of group theory in solid state physics: Exercise 16 in the note on Representation Theory. This is one of the most important problems this quarter; please give it some attention!
26. Do exercise 1 of the note on Lie groups and Lie algebras, linked to the Ph 129 web page.