

Physics 195b  
Problem set number 15  
Due 2 PM, Thursday, February 13, 2003

**Notes about course:**

- Homework should be turned in to the TA's mail slot on the first floor of East Bridge.
- Collaboration policy: OK to work together in small groups, and to help with each other's understanding. Best to first give problems a good try by yourself. Don't just copy someone else's work – whatever you turn in should be what you think you understand.
- There is a web page for this course, which should be referred to for the most up-to-date information. The URL:  
<http://www.hep.caltech.edu/~fcp/ph195/>
- TA: Anura Abeyesinghe, [anura@caltech.edu](mailto:anura@caltech.edu)
- If you think a problem is completely trivial (and hence a waste of your time), you don't have to do it. Just write "trivial" where your solution would go, and you will get credit for it. Of course, this means you are volunteering to help the rest of the class understand it, if they don't find it so simple. . .

**READING:** Read sections 1–7 of the “Scattering” course note.

**PROBLEMS:**

70. Almost degenerate perturbation theory: Do exercise 6 of the Approximate Methods course note.
71. Density of states: Do exercise 7 of the Approximate Methods course note.
72. First Born approximation: Do exercise 8 of the Approximate Methods course note.
73. Yukawa potential: Do exercise 9 of the Approximate Methods course note.
74. Partial wave expansion; Optical theorem: Do Exercise 1 of the Scattering course note.