Spring Term 2003

22.02 Introduction to APPLIED NUCLEAR PHYSICS

Problem Set #4

1. Krane, problem 4.4 (*hint:* use the known, $E = 2.2\ MeV$, to evaluate the wavenumbers, $k_1,\ k_2$.)

2. Show (using ESTIMATES) that the deuteron has no excited states. *Estimate* the excited state energy from both higher order radial eigenfunctions or from non-zero angular momentum.

3. Prove that the di-neutron cannot exist.