

Fall Quarter 2007
UCSD Physics 214 & UCSB Physics 225
Homework 4

This Homework assignment covers chapter 3 & 4 in Halzen & Marten.

1. Calculate the differential cross section $d\sigma/d\Omega$ for ultrarelativistic spinless electrons from a fixed Coulomb potential Ze/r . By ultrarelativistic we mean that you can ignore the electron mass compared to the energy of the electron.
2. H&M problem 3.3. You don't need to list advantages of fixed target accelerators.
3. H&M problem 4.2
4. H&M problem 4.3
5. For the following I want you to read ahead a little in H&M. They discuss the invariant variables s, t, u in Chapter 4.7.
 - a. H&M problem 4.5
 - b. H&M problem 4.6
6. In addition, I strongly suggest that you put some serious effort into your seminar talk preparation.