

Physics 390: Homework set #6

Due Wednesday March 29, 2006

Reading: Tipler & Llewellyn, Chapter 11, 12

Note: All Problems need to be solved!

Questions:

1. In many fission reactors, a large number of antineutrinos are emitted. Why?
2. Suppose we wish to do radioactive dating of a sample whose age we guess to be about t . Should we choose an isotope whose half-life is (a) $\gg t$; (b) $\sim t$; or (c) $\ll t$?
3. Many households in Michigan have elevated levels of radon gas in their basements. Where does this gas come from? Why does it accumulate in basements? How is it detected? Why is it considered a health hazard?

Problems: Chapter 11: 9, 19, 28, 37
Chapter 12: 3, 8, 19