Chapter 8 - Radiation

Alex Madden, Aaron Magilligan

A non-relativistic electron is moving in a plane perpendicular to a uniform static magnetic field B. At time $t = 0$ it has energy $E = E_0$

1. Find the instantaneous power radiated in the dipole approximation as a function of the energy $E(t)$

2. Find an expression for the energy of the electron as a function of time.

3. Find the amount of time necessary for the electron's energy to decrease by a factor of 2, and compare to the period of the electron's motion.