

M06E.3 - Radiation from a Falling Electron

Problem

An electron is released from rest at a large distance r_0 from a nucleus of charge Ze and then “falls” towards the nucleus. From what follows, assume the electron’s velocity is such that $v \ll c$ and the radiation reaction on the electron is negligible.

- a) What is the angular distribution of the emitted radiation?
- b) How is the emitted radiation polarized?
- c) What is the radiated power as a function of the separation between the electron and the nucleus?