

Physics 247: Relativistic Dynamics 3

1) A $p=60.0\text{GeV}/c$ neutral pion (mass $134.9766\text{ MeV}/c^2$) moves in the positive x direction in the lab frame. The pion then decays into two photons. In the rest frame of the pion the photons go opposite directions along the $+y$ and $-y$ axis. In the lab frame find the angle between the photon flight directions of the two photons in degrees. If you have a detector that can separately detect two photons if they are 0.1 degrees apart, is it sufficient to detect the two photons?