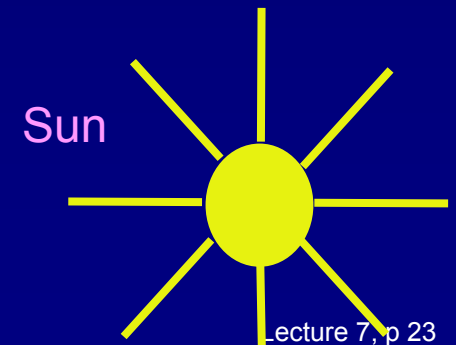
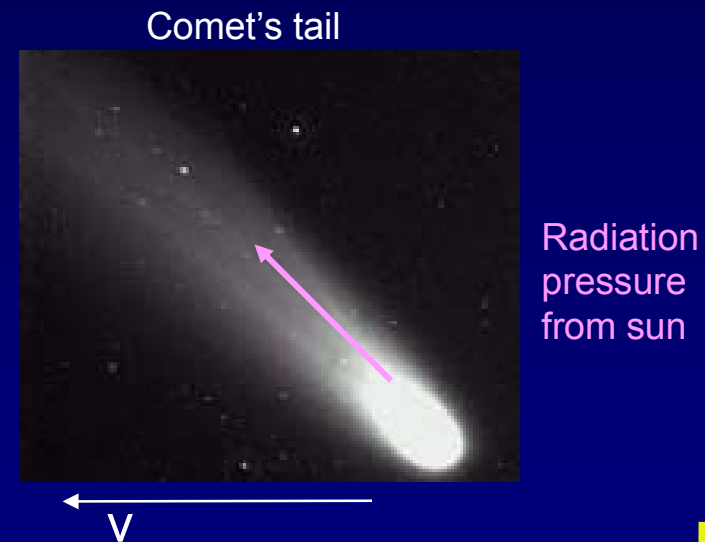
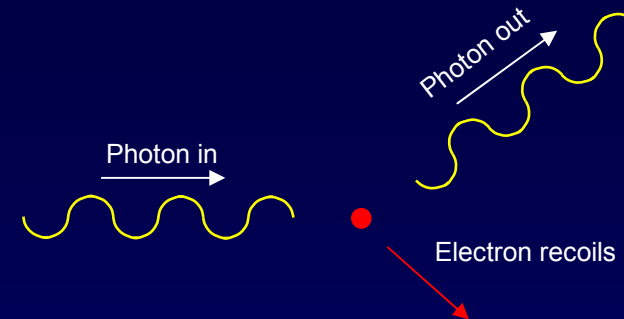


Momentum of a Photon (1)

Between 1919 and 1923, A.H. Compton showed that x-ray photons collide elastically with electrons in the same way that two particles would elastically collide! “Compton Scattering”

Photons carry momentum!
Perhaps this shouldn't surprise us:
Maxwell's equations also predict that light waves have $p = E/c$.



Why not $E_{\text{photon}} = p^2/2m$? (Physics 211) Because photons have no mass.
 $E_{\text{photon}} = pc$ comes from special relativity, which more generally says $E^2 = m^2c^4 + p^2c^2$. For the photon, $m = 0$.