

Figure 4.16. The total mass absorption coefficient for high energy photons in lead, indicating the contributions associated with the photoelectric absorption, Compton scattering and electron-positron pair production. (From H. A. Enge (1966). *Introduction to nuclear physics*, page 193, London: Addison-Wesley Publishing Co.)

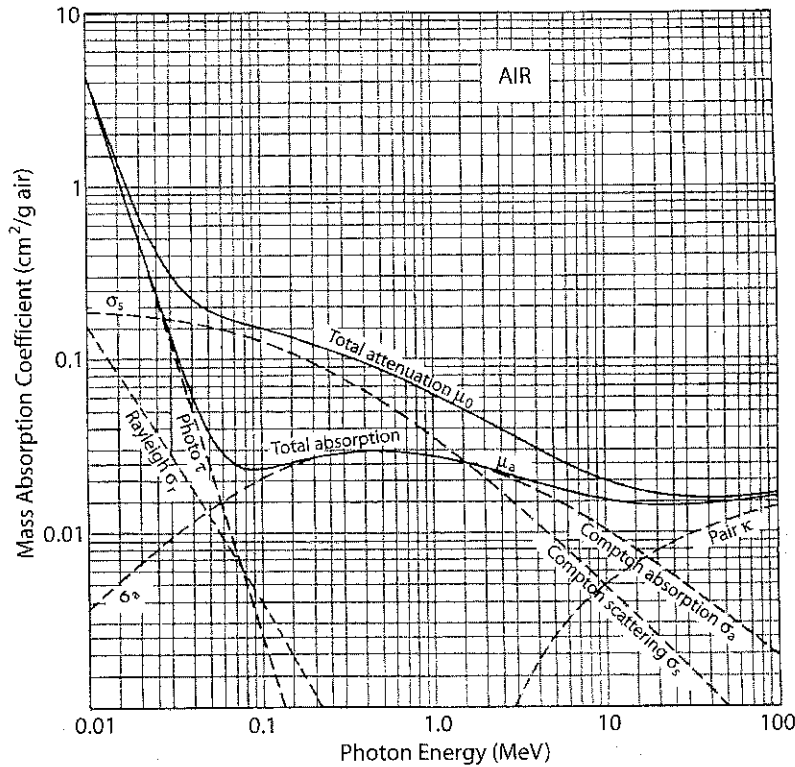


Figure 1.2 Mass absorption coefficients for photons in air. The labeled curves correspond to Compton absorption ( $\sigma_a$ ), Compton scattering ( $\sigma_s$ ), photoelectric absorption ( $\tau$ ), pair production ( $\kappa$ ), and Rayleigh scattering ( $\sigma_r$ ), which is elastic and confined to small angles, and can usually be ignored at the energies shown here. The curve marked "total absorption" shows the sum  $\tau + \sigma_a + \kappa$ . Adding Compton scattering to this yields the "total attenuation" coefficient  $\mu_0$ . The composition for air in this diagram is 78.04 volume percent nitrogen, 21.02 volume percent oxygen, and 0.94 volume percent argon. (From Evans 1955)