

(7.10) An experiment is done with ^{60}mCo which emits $0.05860 \text{ MeV } \gamma$. The detector used is a NaI crystal. What photo peaks will be observed if the electron binding energies in sodium are K 1072 and L 63 eV, and in iodine K 33170 and L 4800 eV?

$E_\gamma := 0.05860 \cdot 10^6 \text{ eV}$ This is the full γ -energy

The observed lines correspond to the photo electron energies. Hence:

$$E_b := 63 \quad E_e := E_\gamma - E_b \quad \text{Eqn. (7.24)} \quad E_e \cdot 10^{-6} = 0.059 \quad \text{MeV L Na}$$

$$E_b := 1072 \quad E_e := E_\gamma - E_b \quad E_e \cdot 10^{-6} = 0.058 \quad \text{MeV K Na}$$

$$E_b := 4800 \quad E_e := E_\gamma - E_b \quad E_e \cdot 10^{-6} = 0.054 \quad \text{MeV L I}$$

$$E_b := 33170 \quad E_e := E_\gamma - E_b \quad E_e \cdot 10^{-6} = 0.025 \quad \text{MeV K I}$$