4. Correction - Geant4 values for σ_γ

   After speaking with Vladimir Grichine from CERN, who wrote the source code for the σ_γ calculations, I was able to convert the tables. Main points:

   (a) Conversion between cm^2/g and cm^2 are done by dividing by the density in $\frac{atoms}{g}$. So the g cancel out. Check eq. 52

   (b) ω in the formula is indeed energy (if I convert with the formula $E = \hbar\omega$, values of Cross Section are absurd.

   Argon density in atoms/g

$$\frac{1}{40} mol/g * 6 * 10^{23} atoms/mol = 0.15 * 10^{23} atoms/g \tag{52}$$

   Dividing the obtained σ_γ by this value, we obtain figure 5, which seems a lot more reasonable than what I had before.

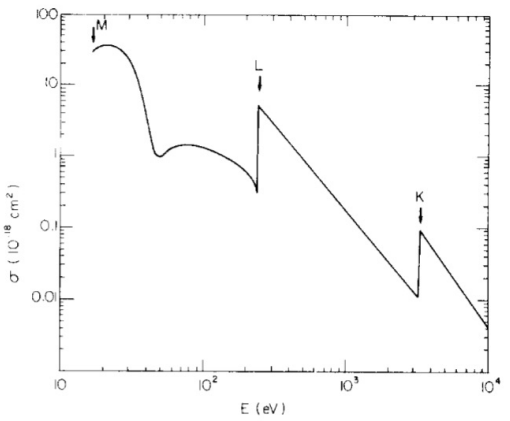
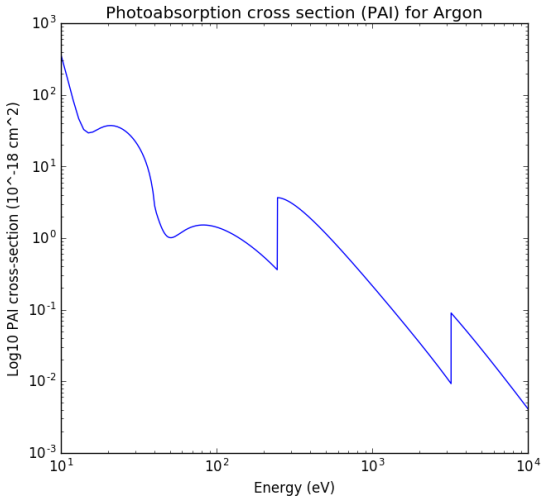


Fig. 22. Parametrization of the photoabsorption cross section $\sigma_\gamma(E)$ used in the simulation.

(a) PAI Cross Section from [LP80]



(b) PAI Cross Section Geant4

Figure 5: Comparison between PAI Cross Section