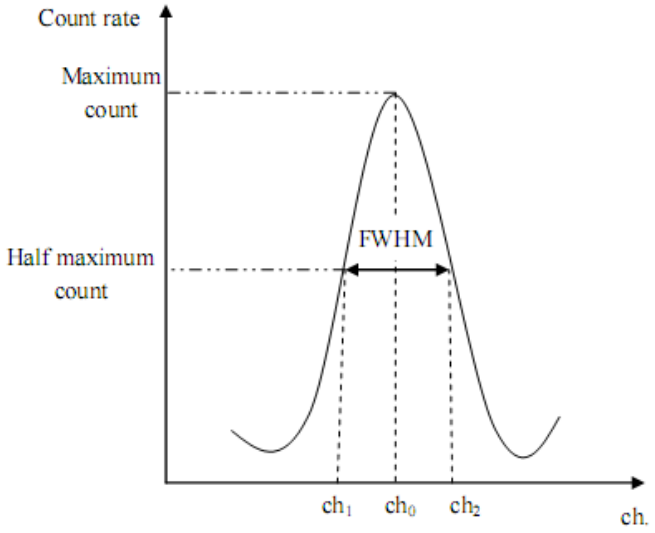
Answer on Question 49473, Physics, Nuclear Physics

Question:

What is the maximuim energy resolution in percent necessary to resolve two peaks at 720 KeV and 755 KeV?

Solution:

From the fundamentals of gamma spectroscopy we know that the energy resolution is the ratio of the full width at half maximum (FWHM) of a given energy peak to the peak hight:



$$R = \frac{FWHM}{ch_0} \cdot 100\% = \frac{\Delta ch}{ch0} \cdot 100\% = \frac{ch_2 - ch_1}{\frac{ch_2 + ch_1}{2}} \cdot 100\% = \frac{755KeV - 720KeV}{\frac{755KeV + 720KeV}{2}} \cdot 100\% = 4.74\%.$$

Answer:

The maximum energy resolution is $R = 4.74\%.$