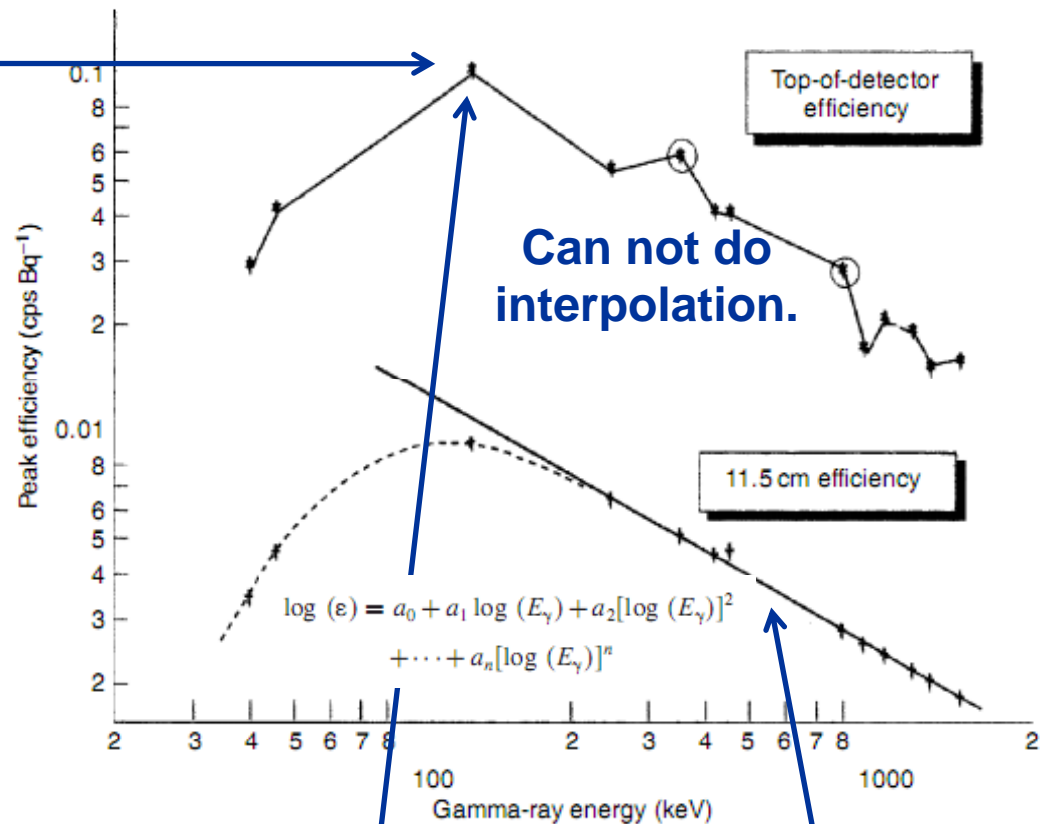
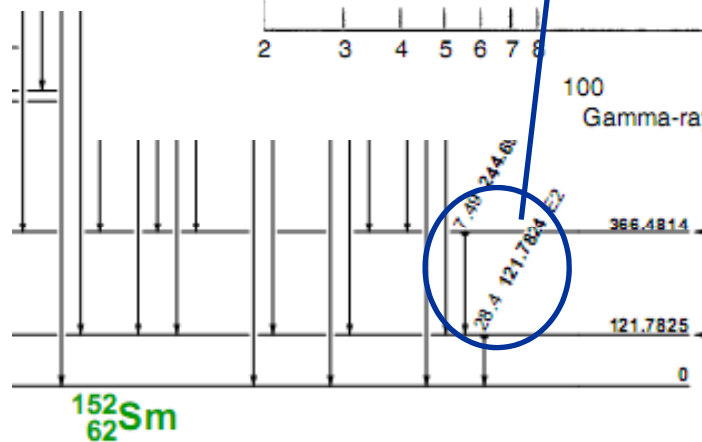
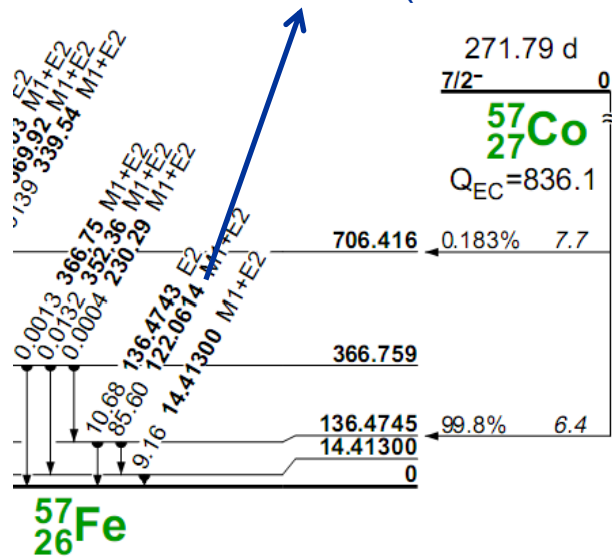


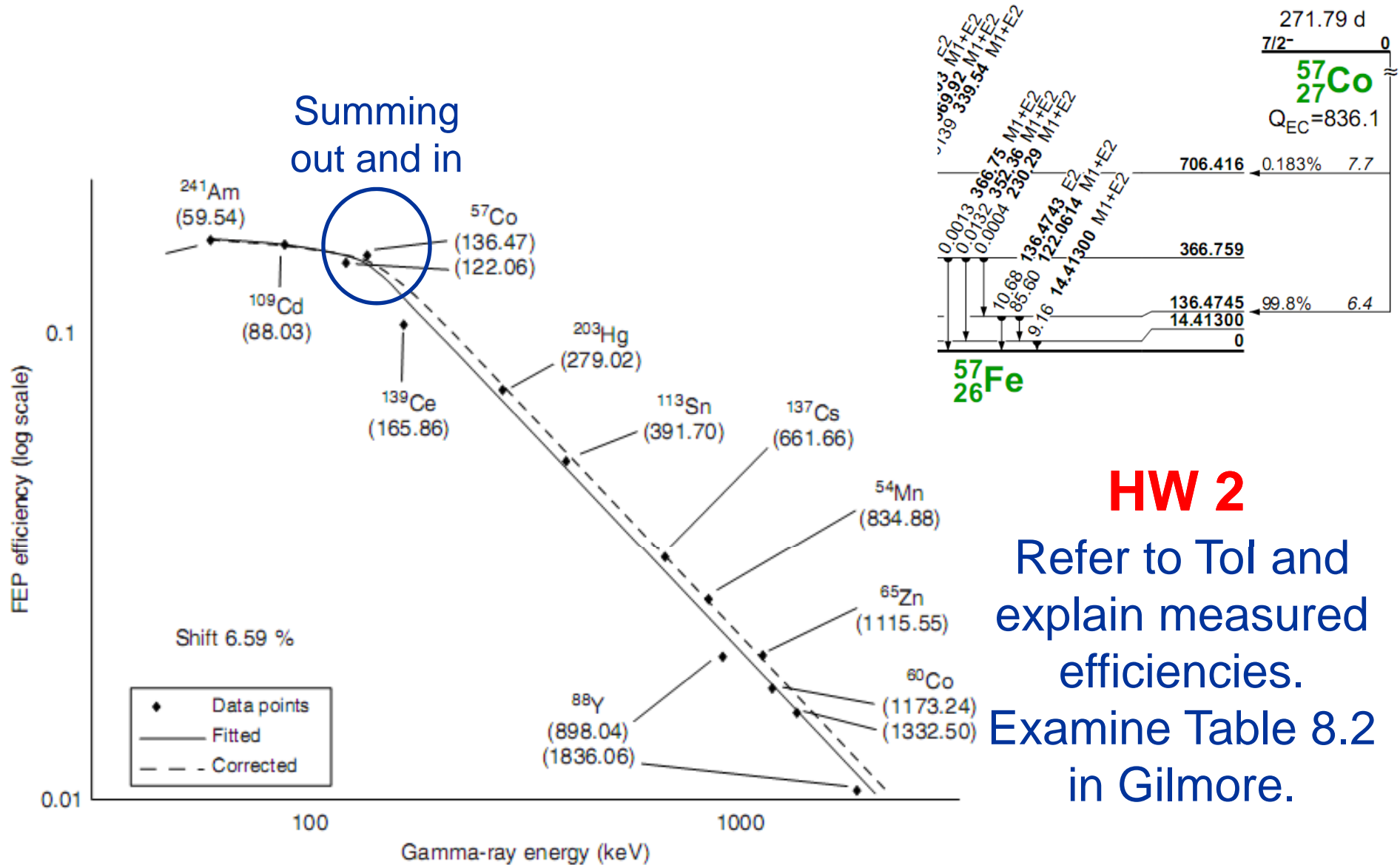
More on Coincidence Summing

- Bad calibration point.
- Can only be used to measure ^{152}Eu .
- Does not represent efficiency at this energy for a “monoenergetic source”.
- Can not be used to measure ^{57}Co (same energy).



- Negligible summing.
- Same distance but larger detector?

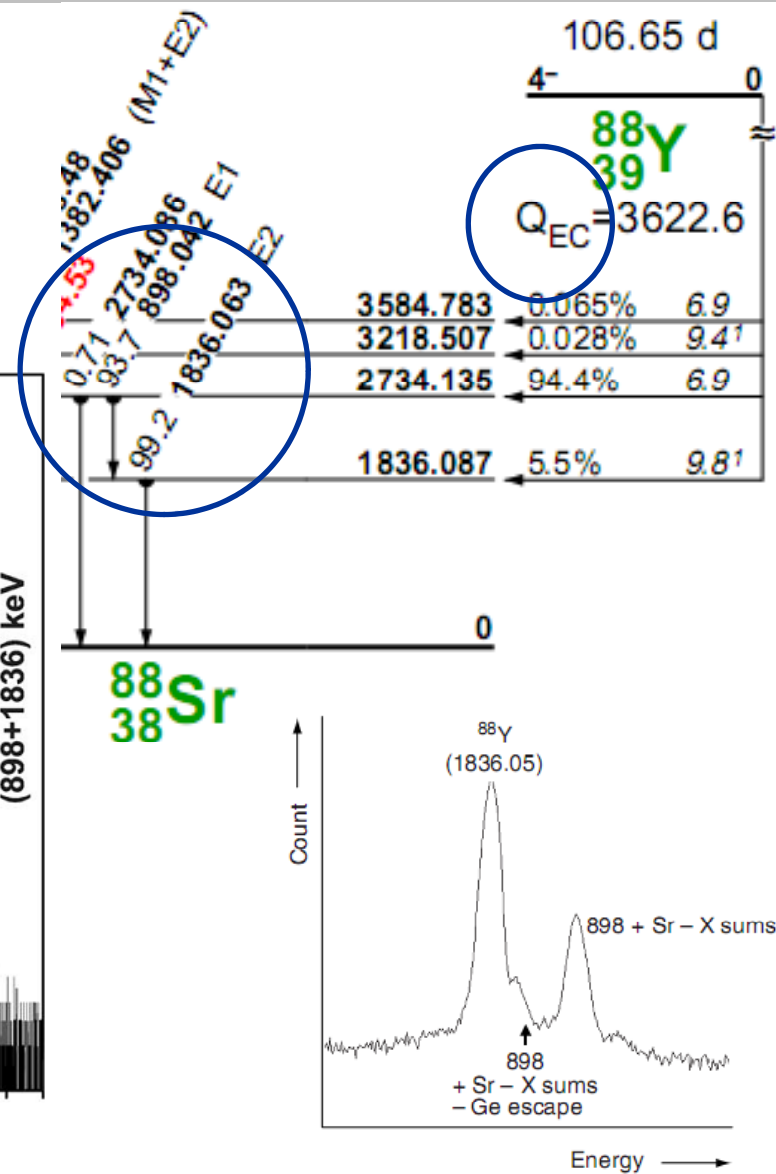
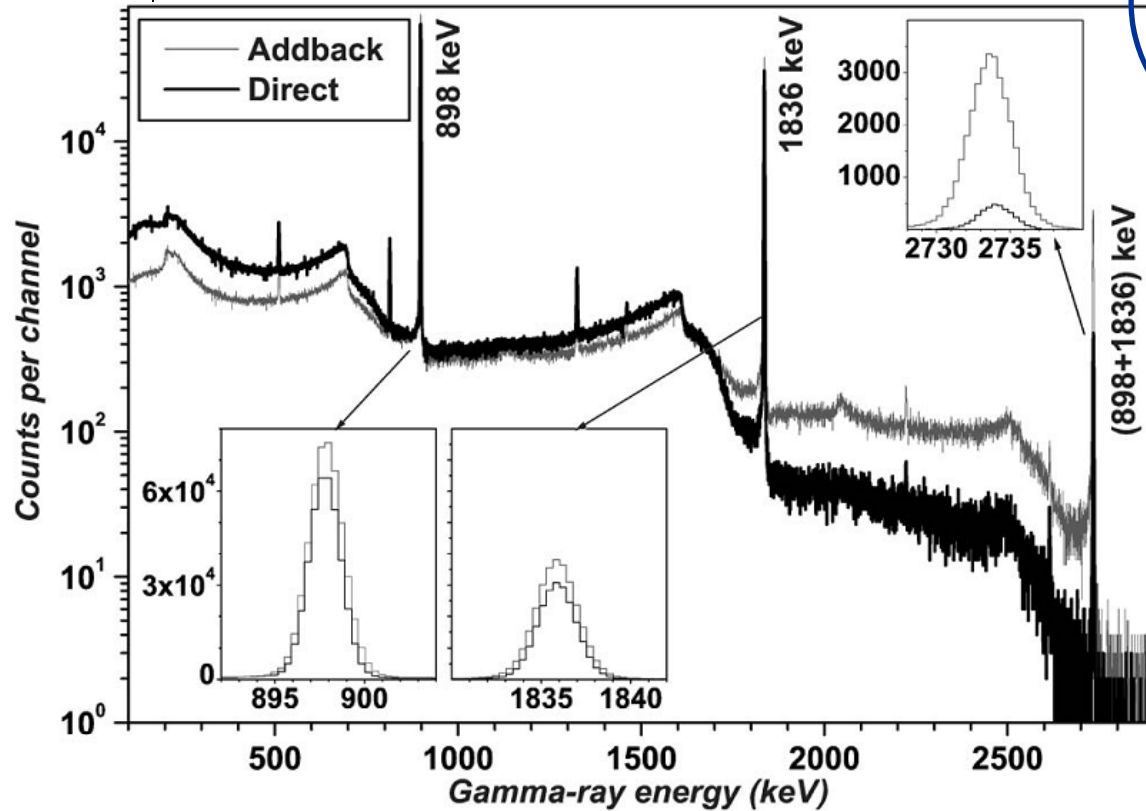
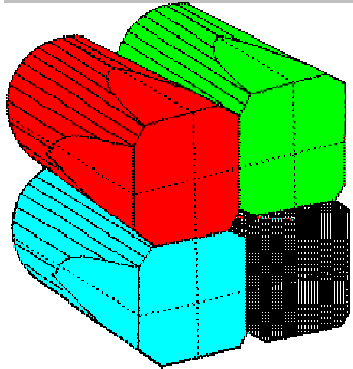
More on Coincidence Summing



HW 2

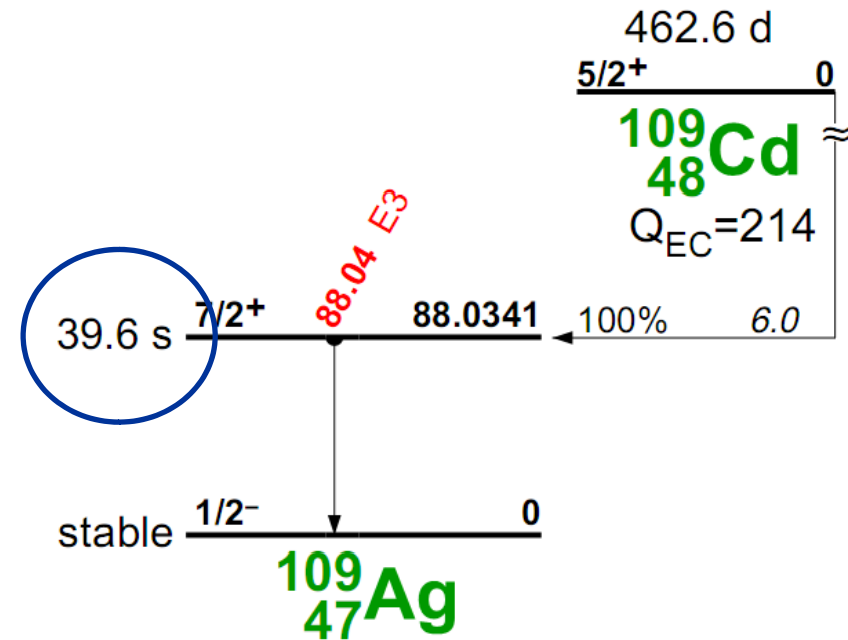
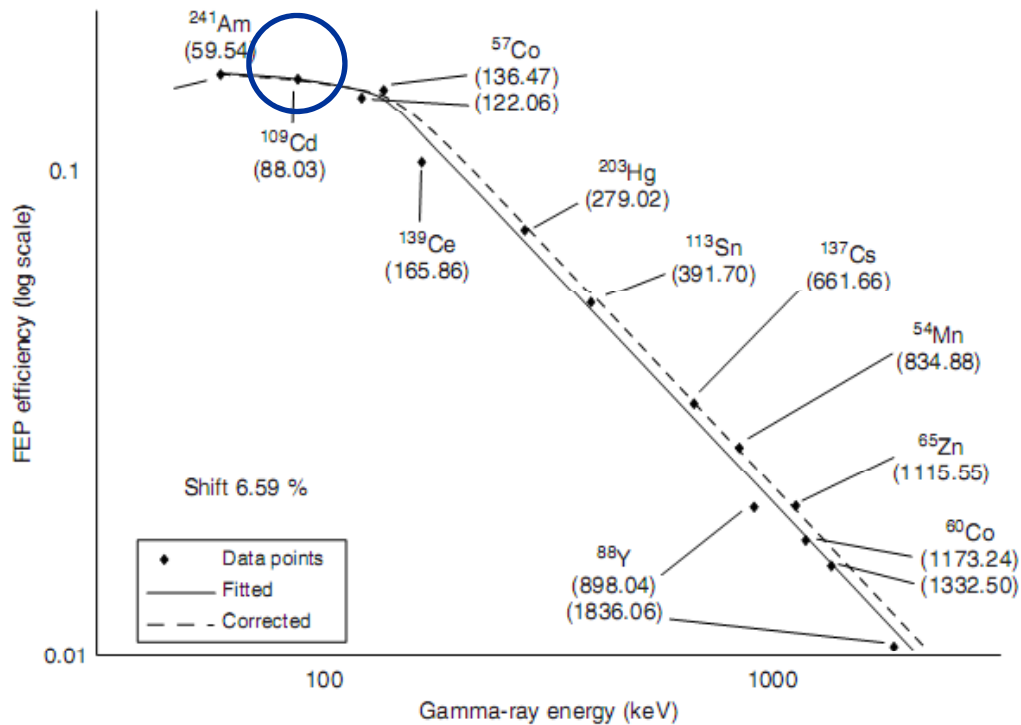
Refer to ToI and explain measured efficiencies. Examine Table 8.2 in Gilmore.

More on Coincidence Summing



More on Coincidence Summing

No γ -x summing expected.



More on Coincidence Summing

- It gets worse the closer the source is to the detector.
- It gets worse the larger the detector and is worst of all when using a well detector.
- It may be worse if a detector with a thin window is used because the X-rays that contribute to the summing will not be absorbed.
- It can be expected whenever nuclides with a complex decay scheme are measured.
- The degree of summing is not dependent upon count rate.
- Look for monoenergetic sources for calibration?
- But you still might need to measure samples with complex decay schemes.

More on Coincidence Summing

- Geometry \Leftrightarrow TCS.
- Extended \Rightarrow varying distance from detector \Rightarrow varying TCS.
- Self absorption is strong for low energy x-rays (sand).

The inescapable conclusion is that, unless sample and standard (or calibration) sources have identical shape and density, are in identical containers and are measured at the same distance, there will be differences in summing which will not be accounted for by the routine calibration process.

Can not do interpolation.

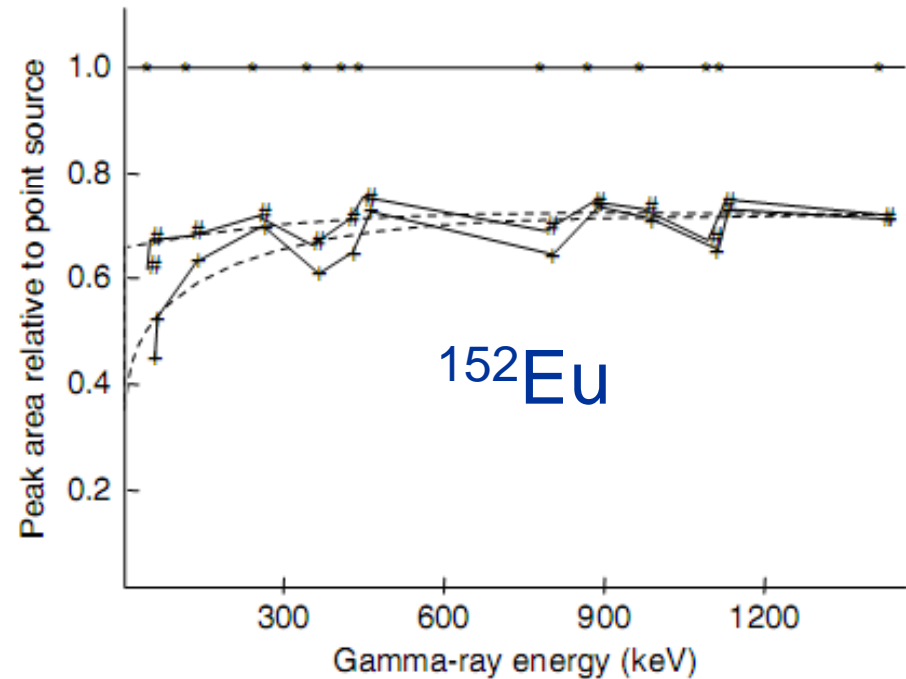


Figure 8.11 Relative peak areas for sources of different geometry and density: (*) point source; (#) aqueous source; (+) sand source