Experiment material

Detector, caesium 137, americium 141, cobalt 60, lead cub, computer with software Tukan,

Experiment instruction

We first start the measure software Tukan and clear the existing data. And then we change the “Stopping condition” in Tukan to make it measures for 1 minute and the time option to “Measurement time”.

Now we take a Cs-137 and put it inside the lead cub under the detector. Then we press the start button to start measuring. When the measurement is finished we save the data in a file. Now we put the two ROI lines at both sides of rightest hill of the graph as it has been showed here. Here we will find the mean value that is showed in the statistic window. (Här behöver vi en energi-kanaler graf av Cs som har två linjär som markera the gamma strålning delen.) Then we go to the calibration window and write the mean value we just get in the polynomial window and write the main photon peak of Cs-137 which is 662keV (<http://www.nndc.bnl.gov/nudat2/>) in the corresponding box. And then we go back to the measuring window.

Now we put a plastic plate that has a hole in the middle above the plate that holds the Cs-137 we just used in the lead box. After that we put varies amount of lead plates on the holy plastic plate. Meanwhile we

Discussion

We need to use the “Measurement time” option to increase the accuracy of measurement. It is because that after the detector get a hit of γ radiation it will shut itself down for a short while. Thus if we use the “Real time” option we will not get the γ radiation that comes counted while the detector is off. That will increase the inaccuracy. However with the “Measurement time” option counts only the time while the detector is on. And that is what we need.