



e) Plot ESR-amplitude as function of absorbed dose in air for both radiation spectra. Calculate the linear fit ( $y=mx+b$ ) by linear regression. What is the growth per Gy of the two radiation fields (two different values)? Use the straight line of the 220 keV X-ray to calculate the absorbed doses given to the LiFo dosimeters in the Perspex depth dose measurement. Plot the absorbed dose as function of thickness of Perspex between radiation source and dosimeter.

f) Look in the table found in the compulsory task of air and LiFo. What will the relationship between the mass-energy-absorption-coefficients a measure of if CPE is present? From practice 1 (task e) did you decide the effective photon energy of each of the two X-ray qualities. Plot the relationship between the mass-energy-absorption-coefficients of air/LiFo up to the photon energies related to the 220 kV X-ray. How does the relationship vary with energy and how do you see this in relation to your observation in d)?

Hint: The ESR-amplitude gives a measurement on the number of radicals produced in a dosimeter and will be proportional with the dose in *LiFo*. The graph in task d) gives then a description of the relationship between absorbed dose in LiFo and absorbed dose in air!