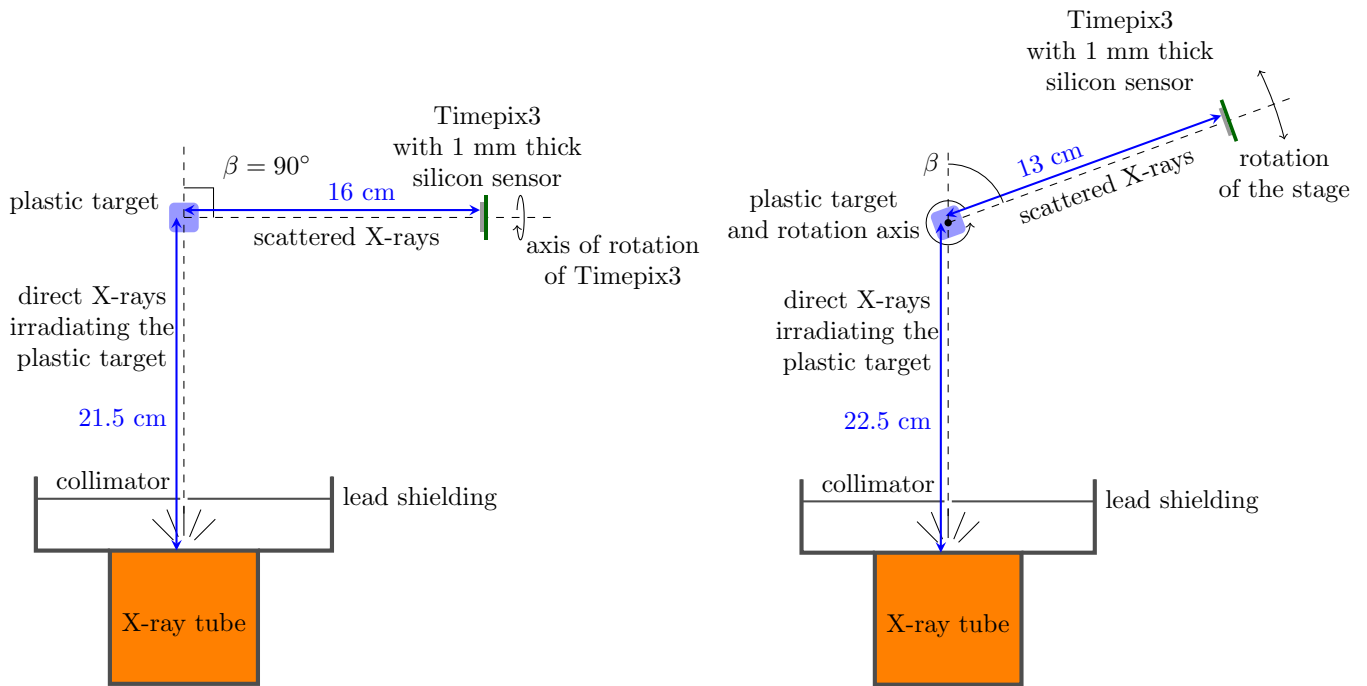


Images from Compton polarimetry and Compton camera with Timepix3



(a) First experiment.

(b) Second experiment.

Figure 1: Experiment setup. A collimated beam from an X-ray tube hits a plastic target. A 1 mm thick silicon Timepix3 at 400 V bias voltage was in the experiments. (a) The detector was placed at scattering angle $\beta = 90^\circ$ where polarization of the scattered X-rays is expected to be high. The detector could be rotated around the target–detector line. (b) The detector and the target sat on a wooden plank that could be rotated around a vertical axis passing through the target.

Modulation curves for different energies, $U_{tube} = 90$ keV

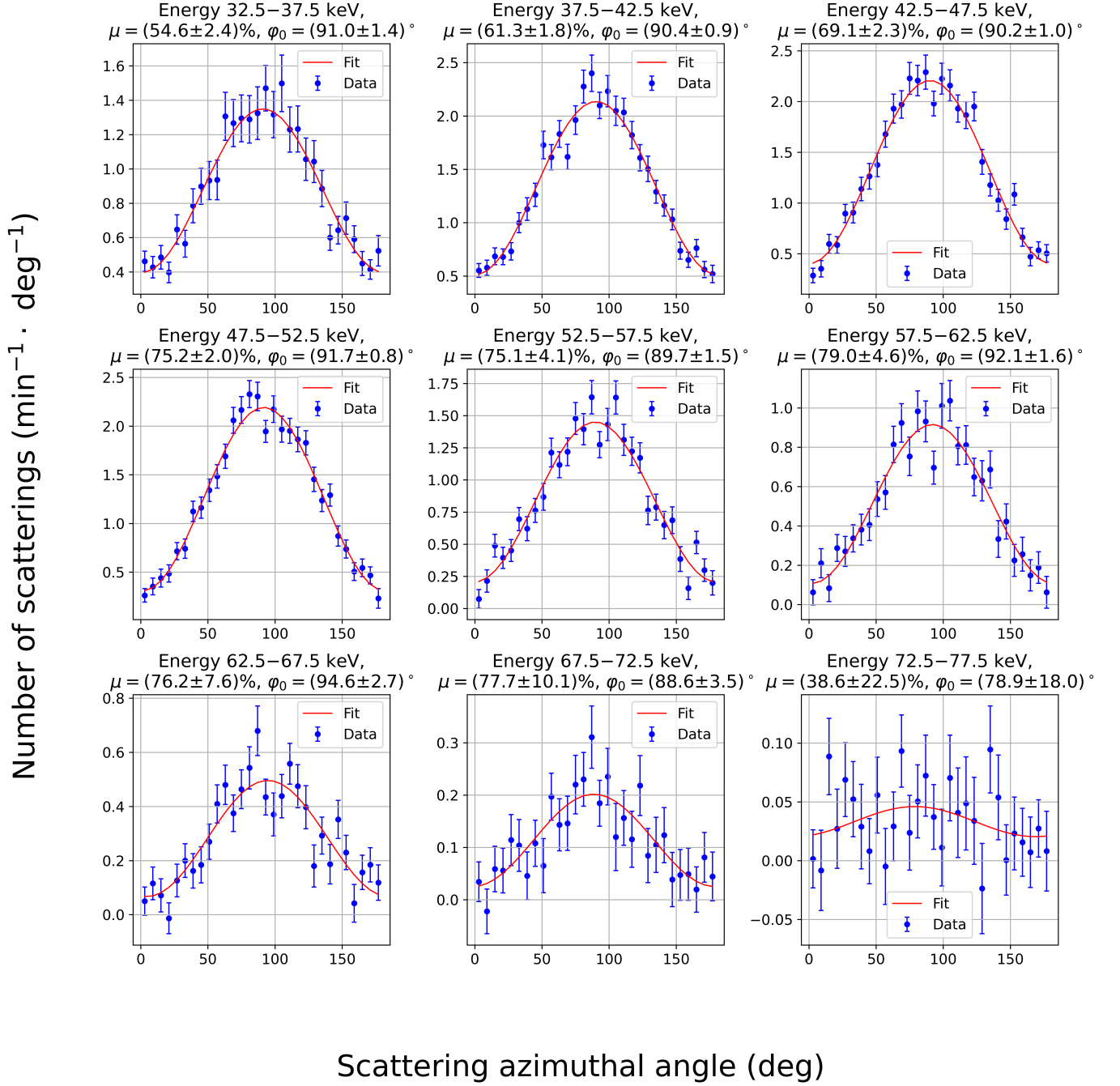


Figure 2: Modulation curves for different energies from one of the measurement in the first experiment (figure 1a) at X-ray tube voltage 90 keV and sensor rotation 0° . Title of each plot shows the energy range, modulation factor μ and phase angle φ_0 of the fit double-cosine curve. You can see that the modulation angles φ_0 are around 90° in all plots.

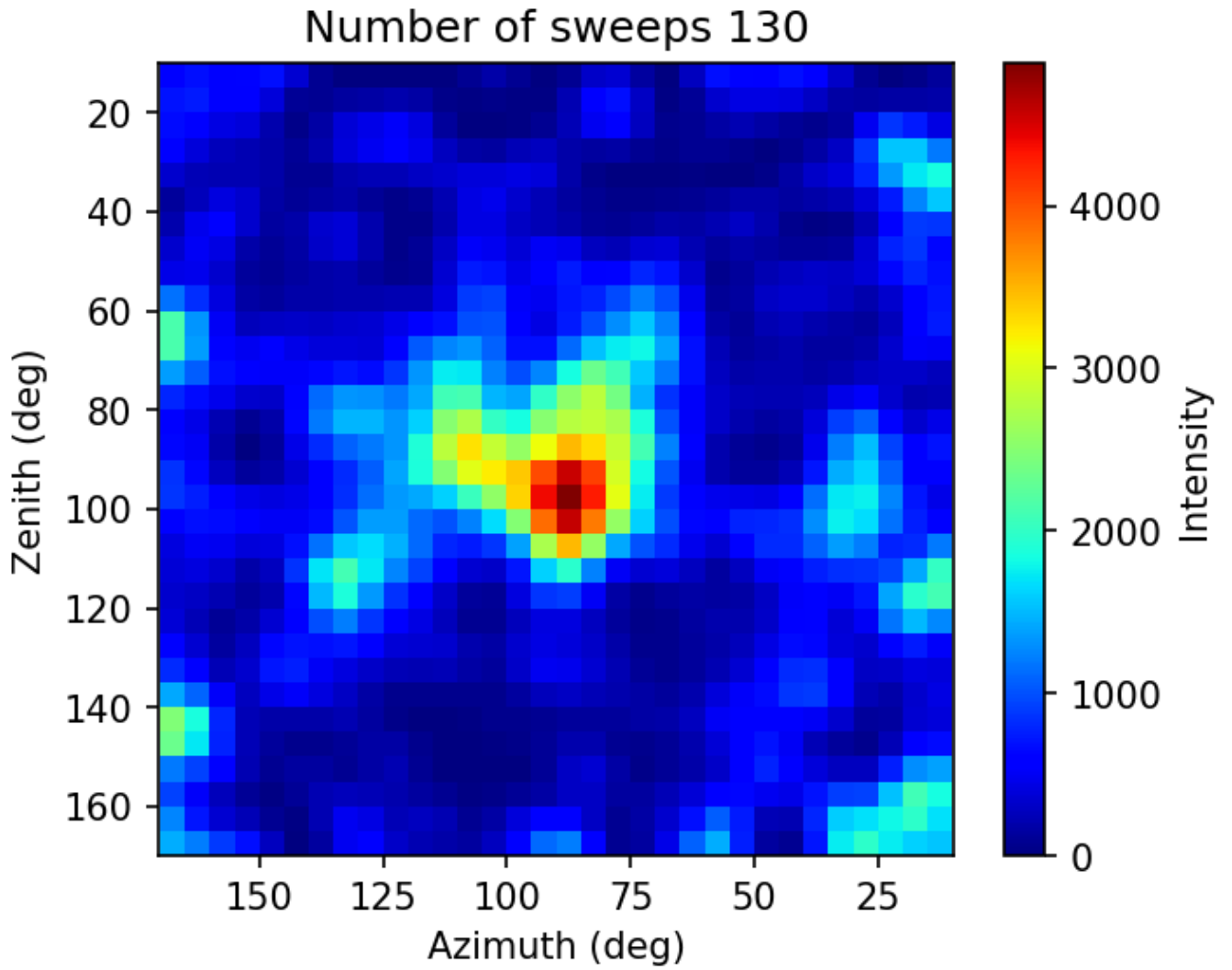


Figure 3: Compton camera image from origin ensemble with resolution recovery method (OE-RR) after 130 OE-RR iterations. Pixels in the image are 5×5 degrees. This image comes from the first experiment (figure 1a) at X-ray tube voltage 75 keV and sensor rotation 0° .