Positron yield and tagging range of the spectrometer defined using 250 um Al converter and detectors in coincidence mode.

Experimental setup simulated is shown in Fig. A. First detector was placed at a distance 5 cm away from the magnet and second detector was placed 15 cm away from the magnet. Events were recorded in the first detector if positrons were detected by the second detector. The thickness of the converter was reduced to be 250 um. Still bremsstrahlung photons with the end point energy 44 MeV were used to create pairs. $11.2*10^7$ photons were thrown on the converter.

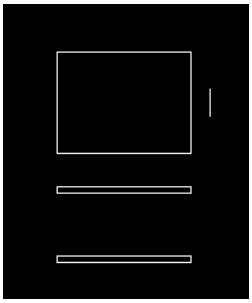

Fig. A. *Experimental setup.*

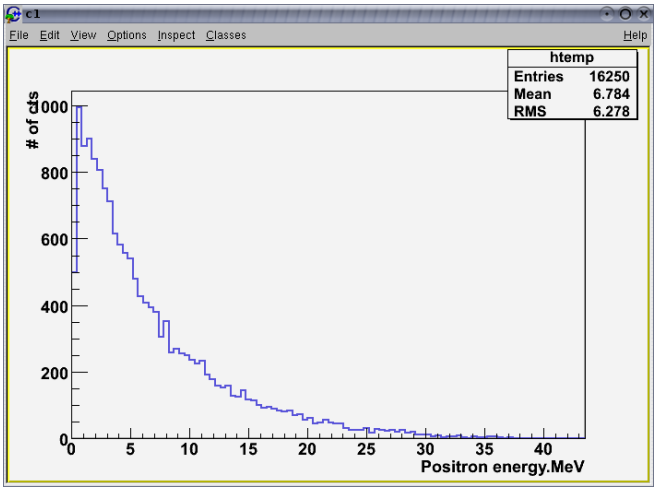

Fig. B. *Positron energy spectrum. 250 um Al.*

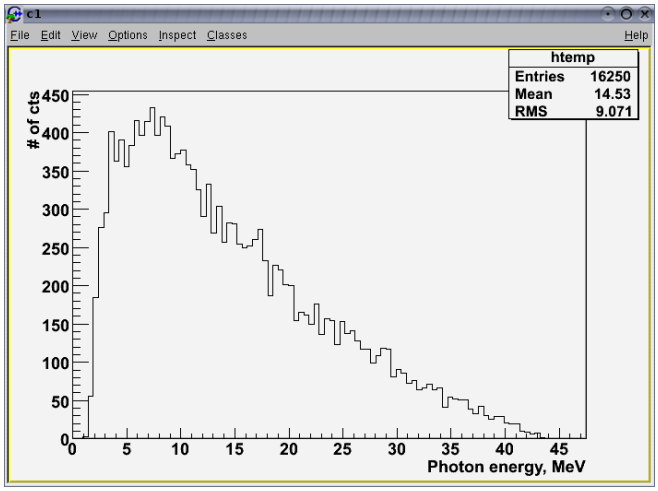

Fig. C. *Photon energy spectrum. 250 um Al.*

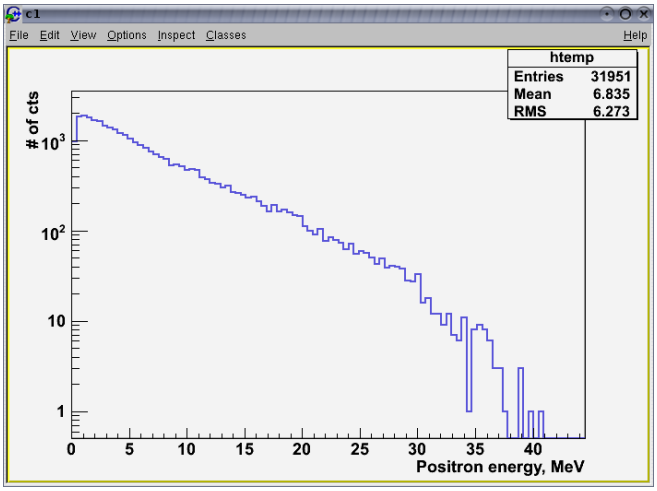

Fig. B. *Positron energy spectrum. 500 um Al.*

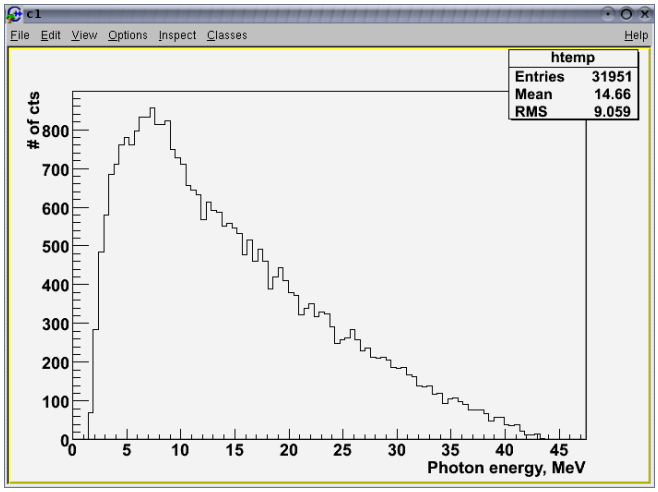

Fig. C. *Photon energy spectrum. 500 um Al.*

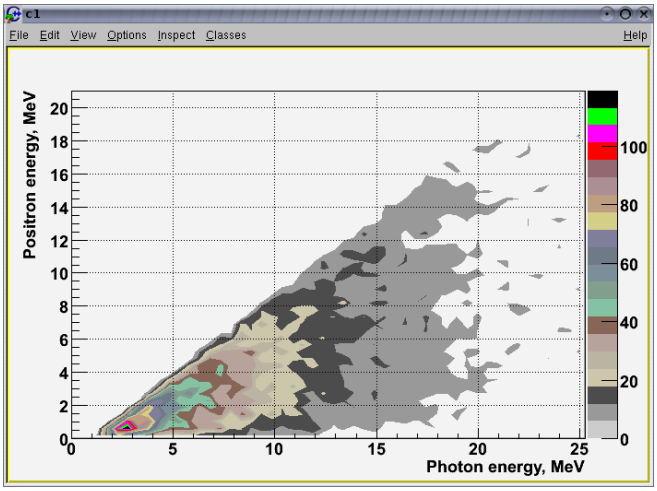

Fig. D. *Positron energy VS. Photon energy. 250 um Al.*

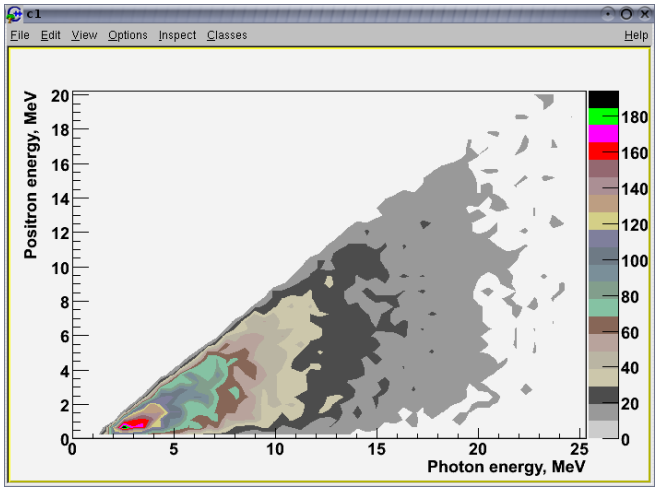

Fig. E. *Positron energy VS. Photon energy. 500 um Al*

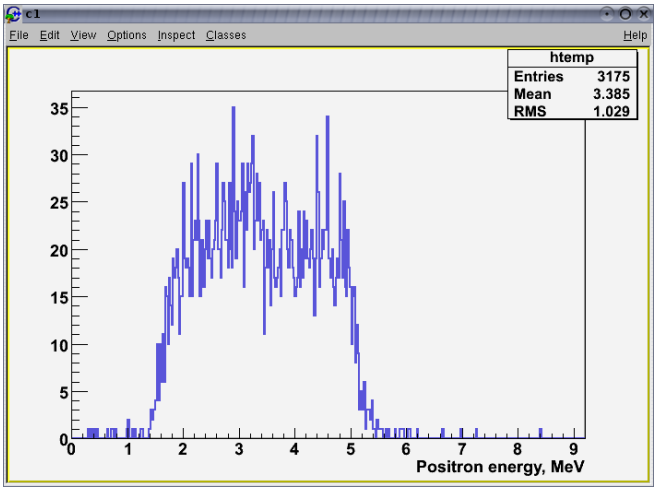

Fig. F. *Positron energy spectrum detected by the first detector in coincidence with the second one.*

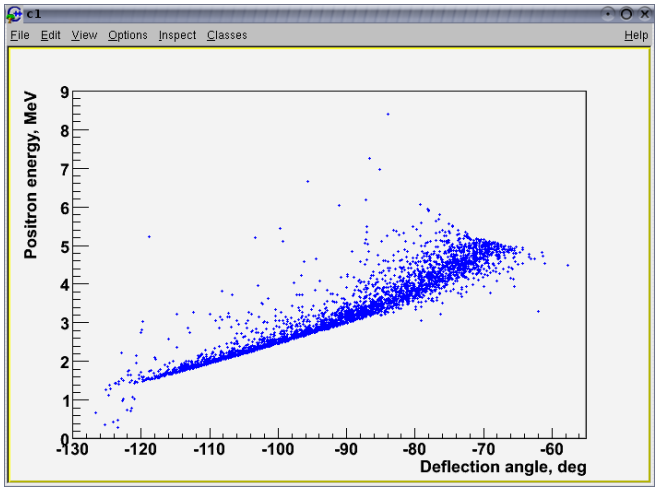

Fig. G. *Tagging range of the spectrometer.*

As it can be seen the tagging range's shrunk in comparison to the case when the detectors were placed on each side at the distance 1 cm away from the magnet and no coincidence mode was used, and 500 um Al converter was used.

Now we could detect 3175/16250 = 19.5 %.

In the case when the detectors were placed on each side at the distance 1 cm away from the magnet and no coincidence mode was used, and 500 um Al converter was used we could detect 55.7 %.