Prompt photons in diffractive photoproduction – short update

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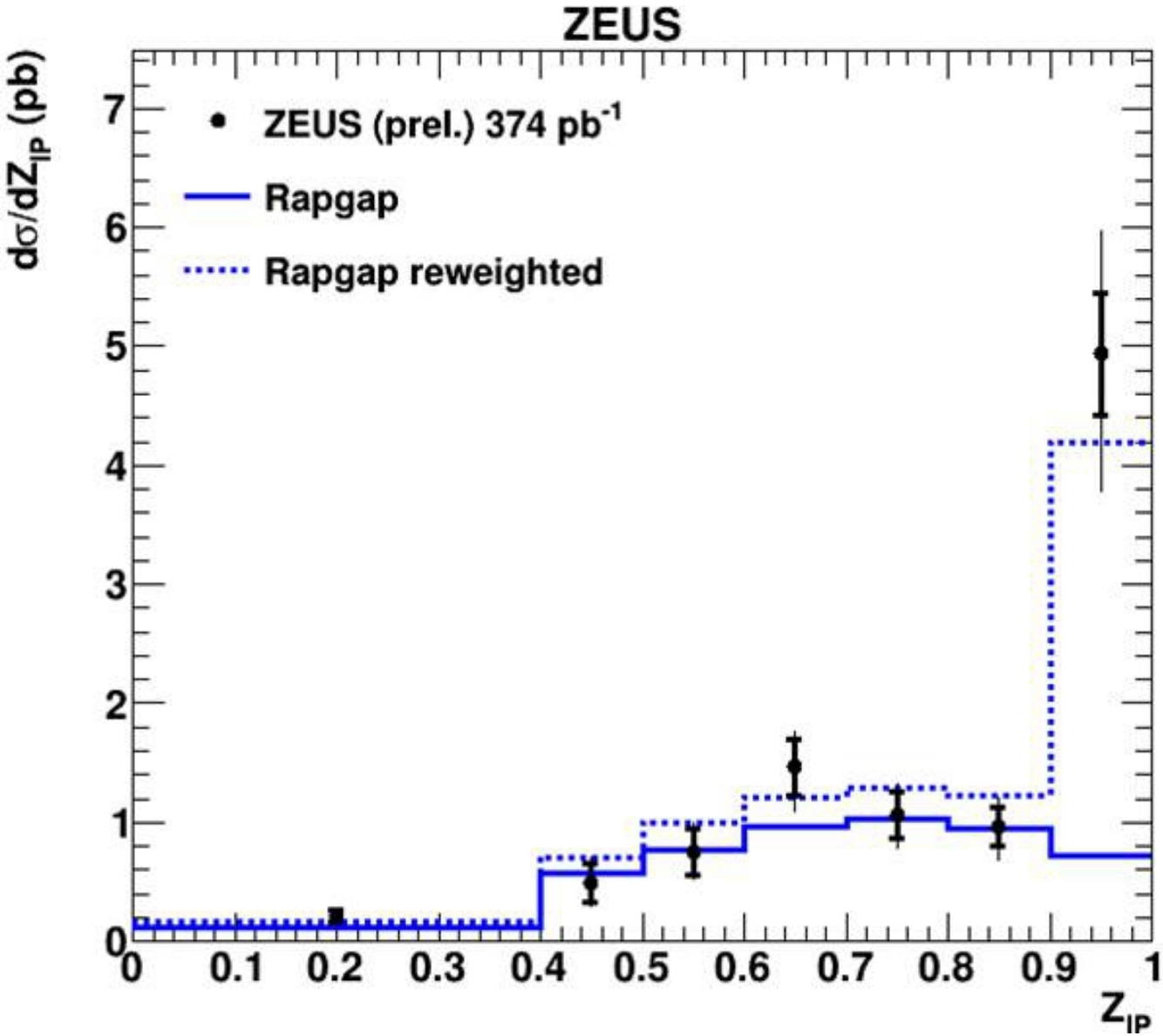
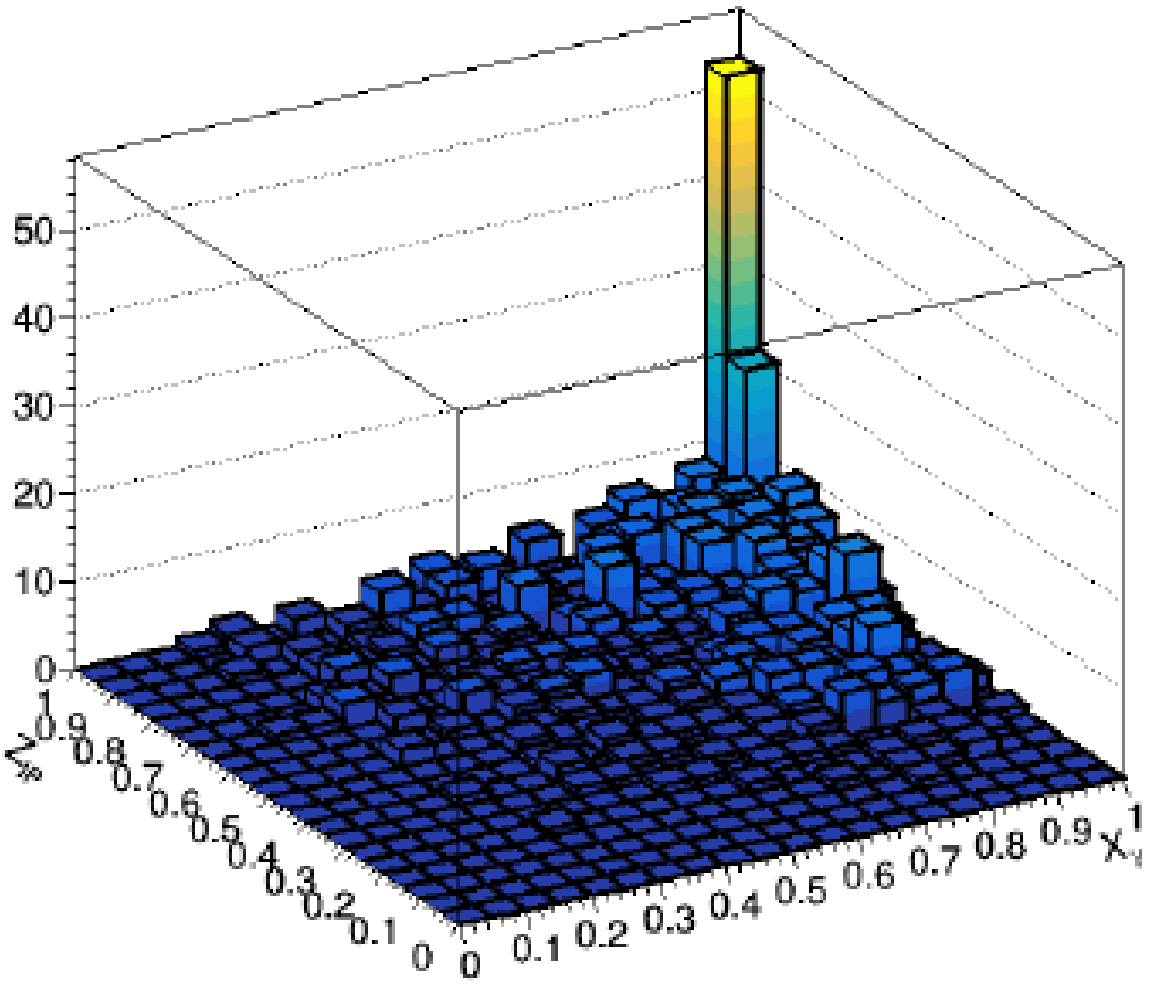
In the last ZAF, Iurii showed cross sections for the variable Z_{IP}



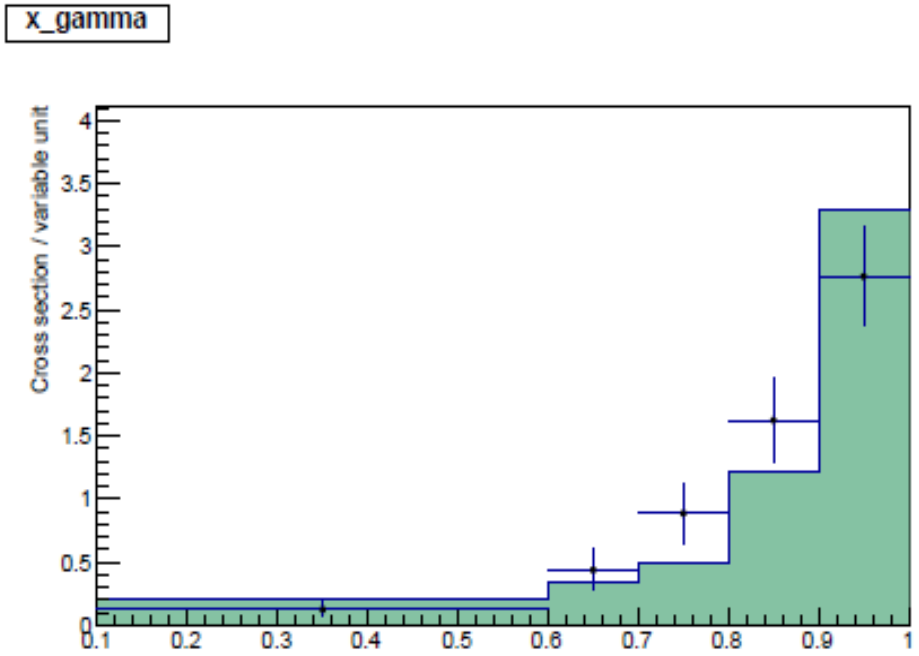
We now look at cross sections for the regions < 0.9 and ≥ 0.9 separately,

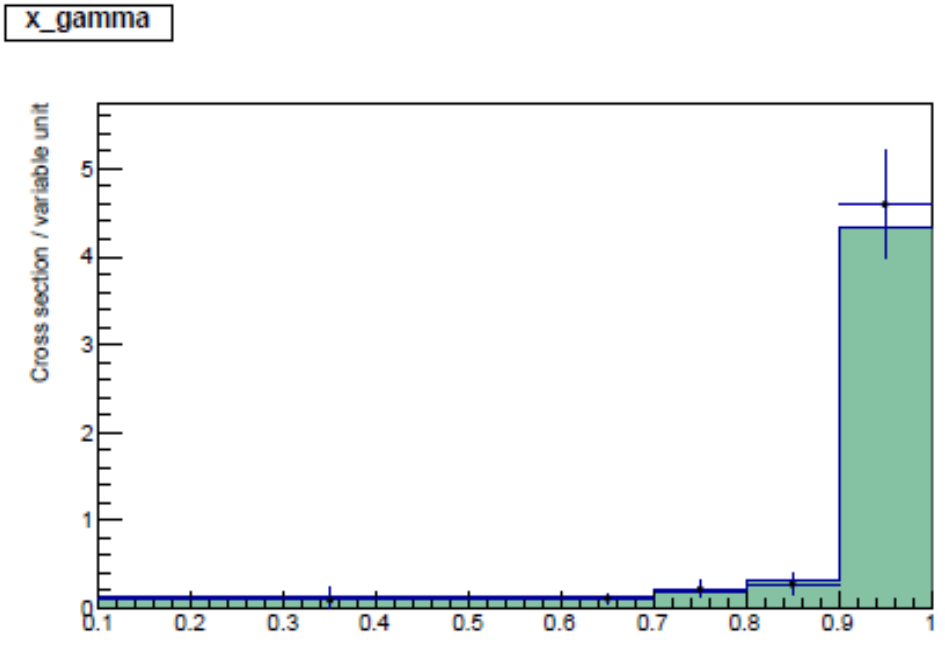
LEGO plot of candidates before subtraction of background from photon signal



Following pages: background-subtracted cross sections as normal.

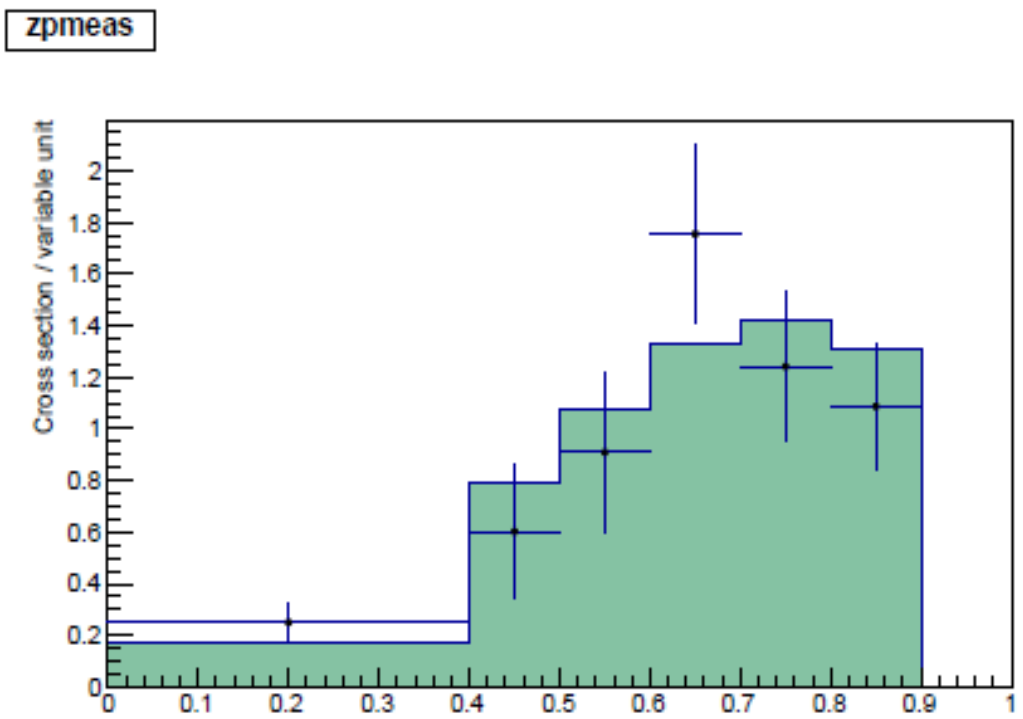
x-gamma Left: $z_{IP}<0.9$ Right: $z_{IP} \geq 0.9$

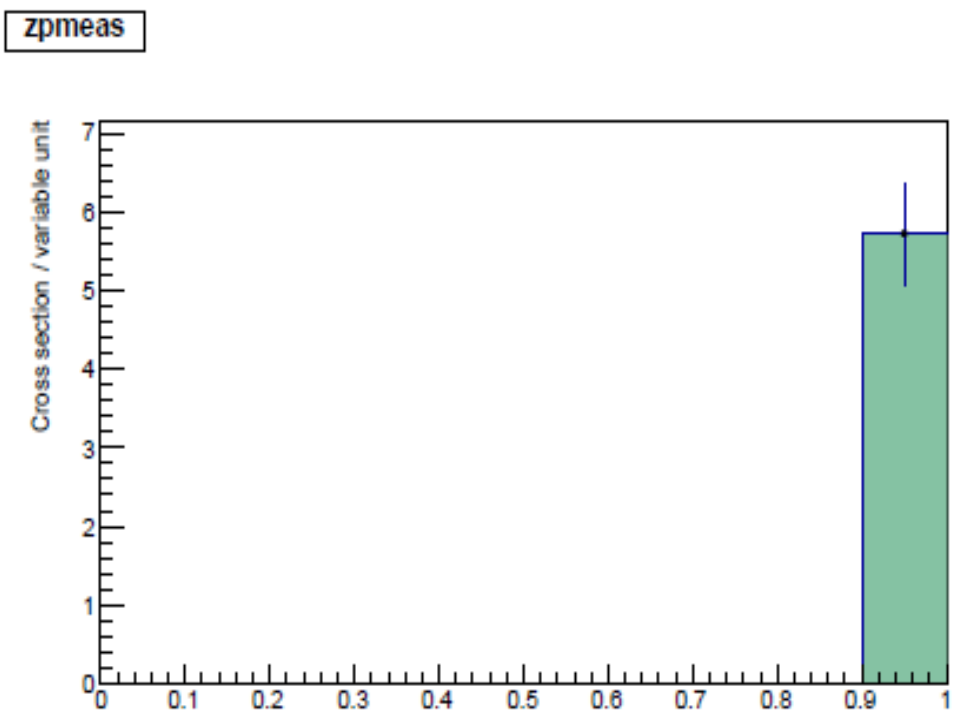




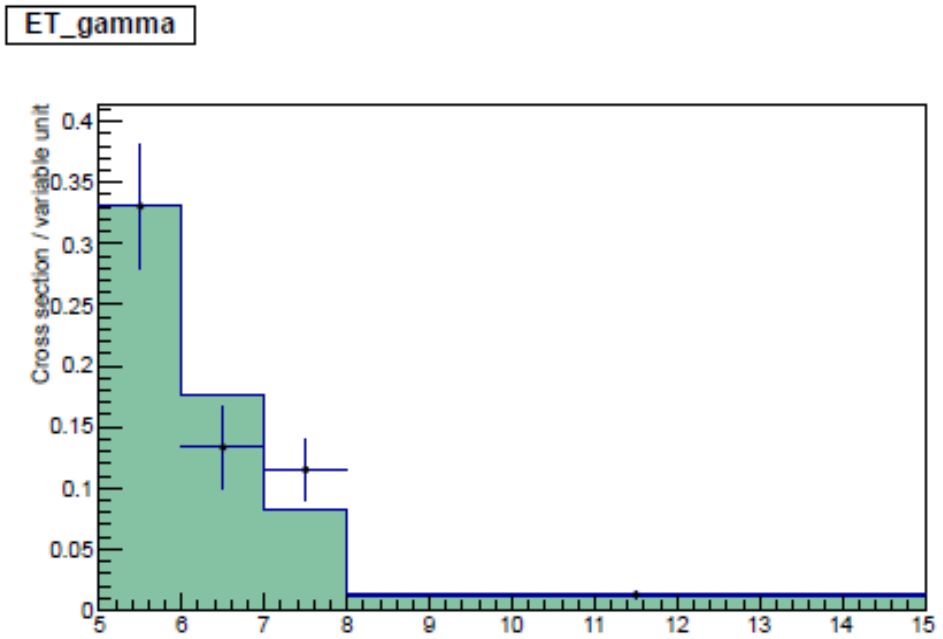
Green histogram is normalised Rapgap.
The cross sections and Rapgap are calculated with the
$z_{IP}<0.9$ or: $z_{IP} \geq 0.9$ requirement as an extra cut at the detector and truth levels.

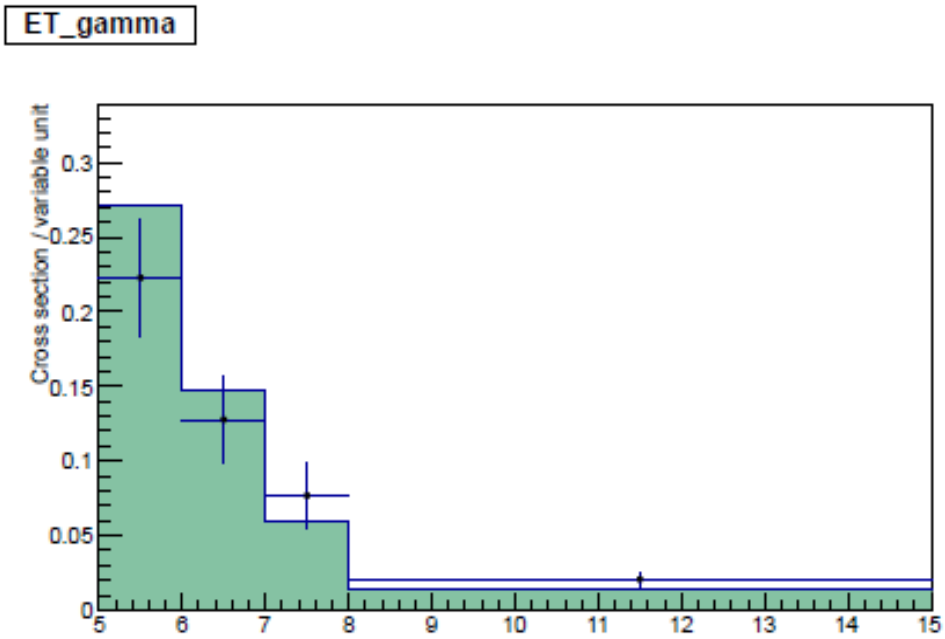
z_{IP} Left: $z_{IP}<0.9$ Right: $z_{IP} \geq 0.9$



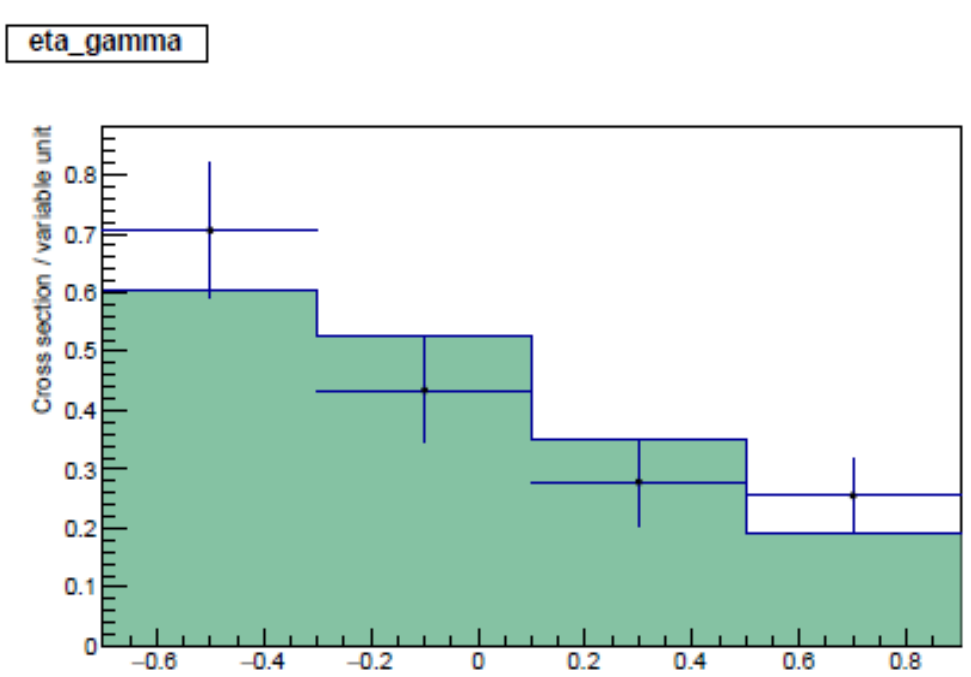


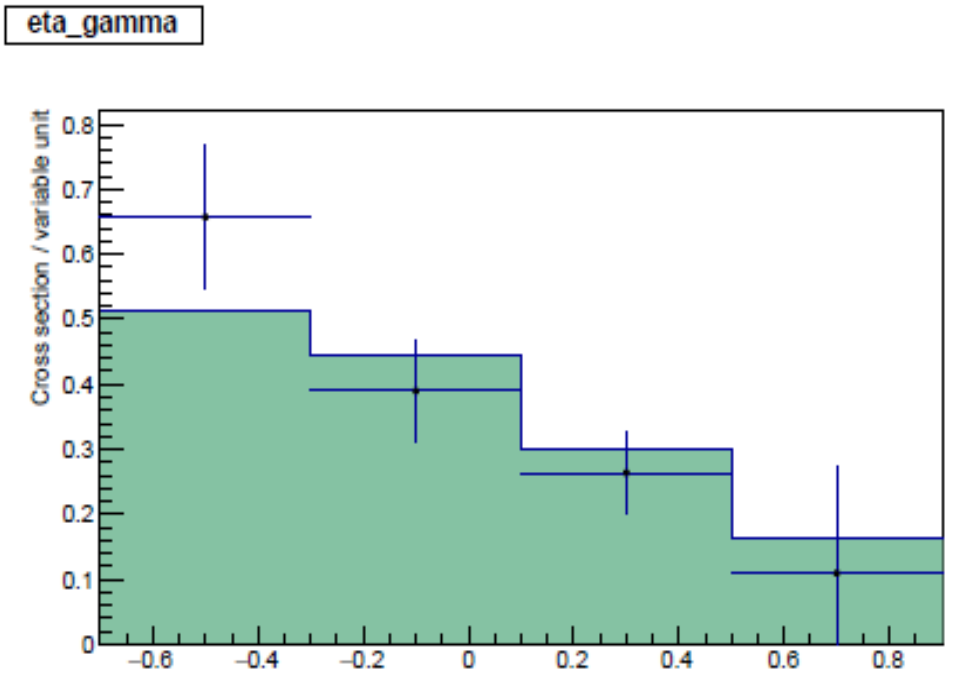
ET(gamma) Left: z_{IP}<0.9 Right: z_{IP} ≥0.9



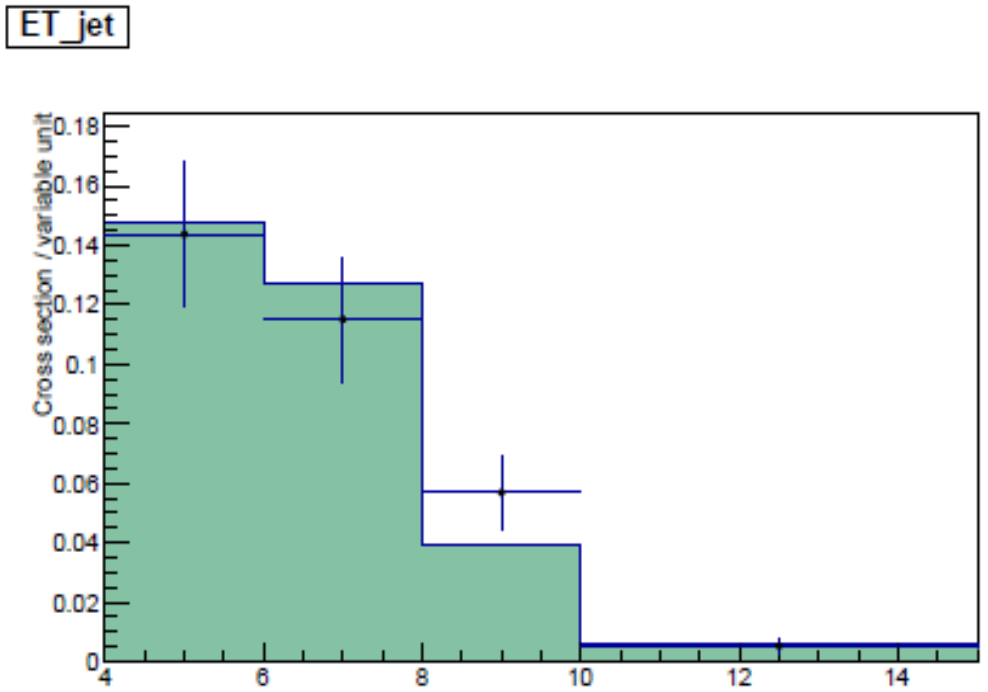


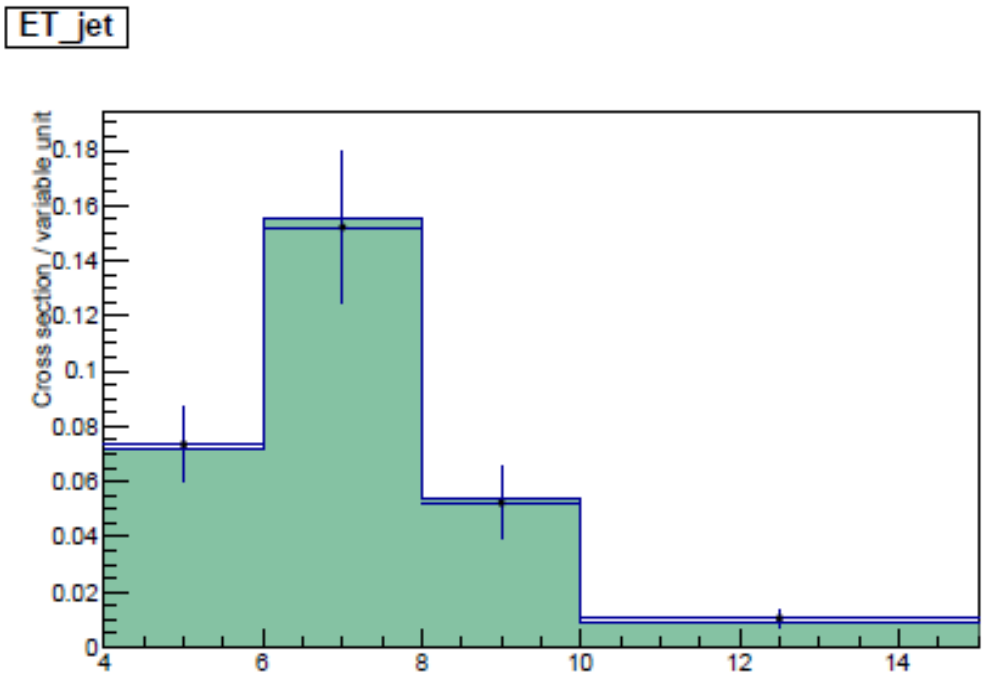
eta(gamma) Left: z_{IP}<0.9 Right: z_{IP} ≥0.9



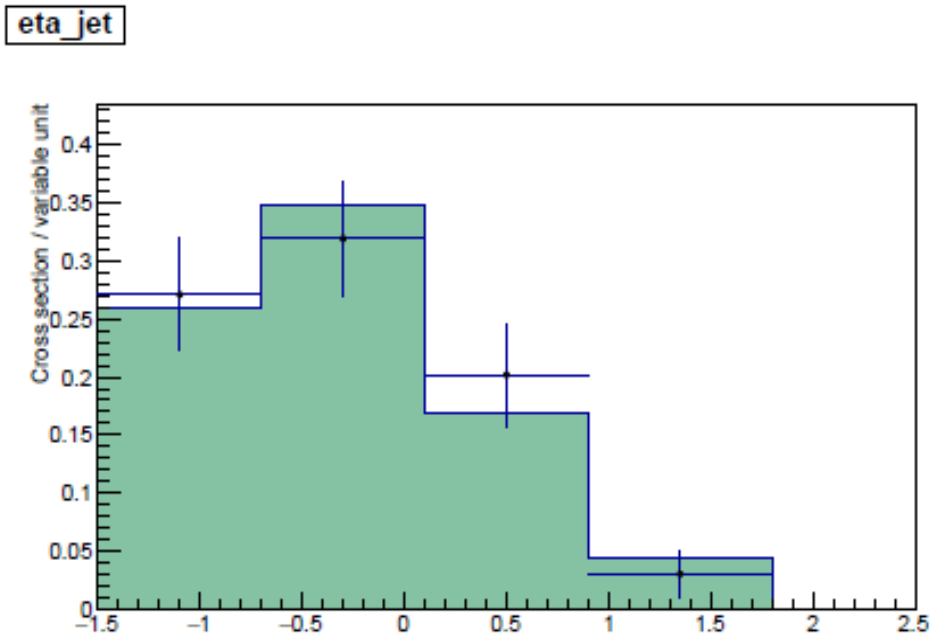


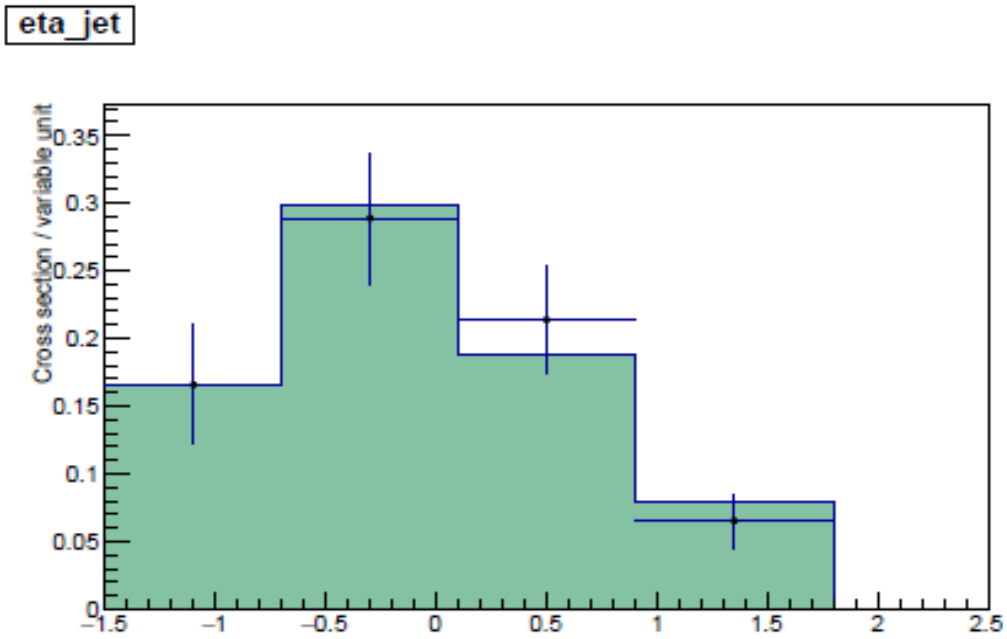
ET(jet) Left: $z_{IP}<0.9$ Right: $z_{IP} \geq 0.9$



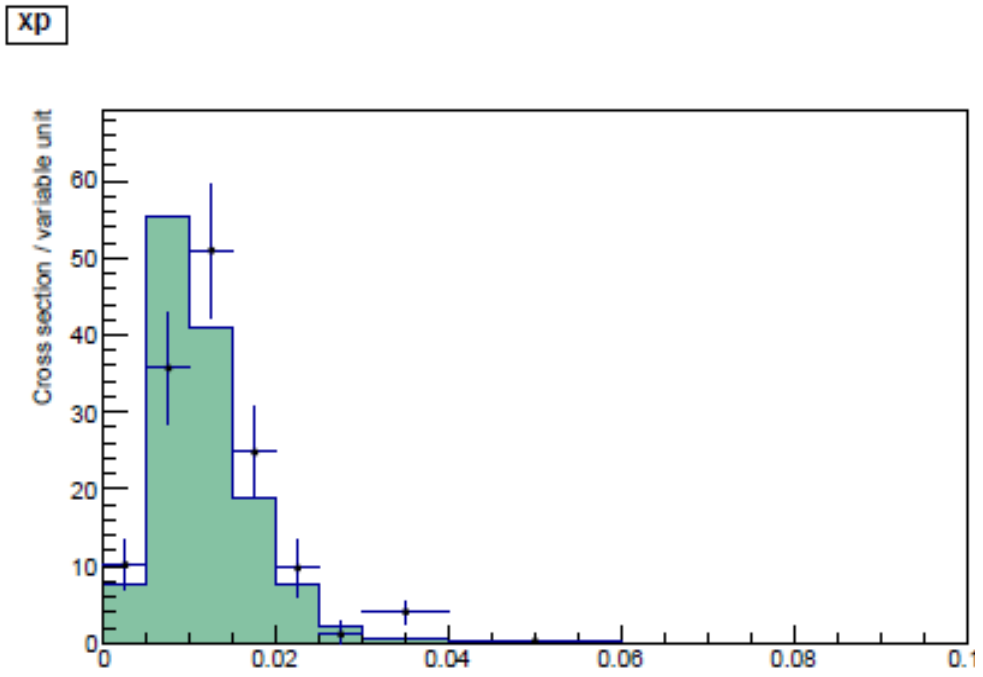


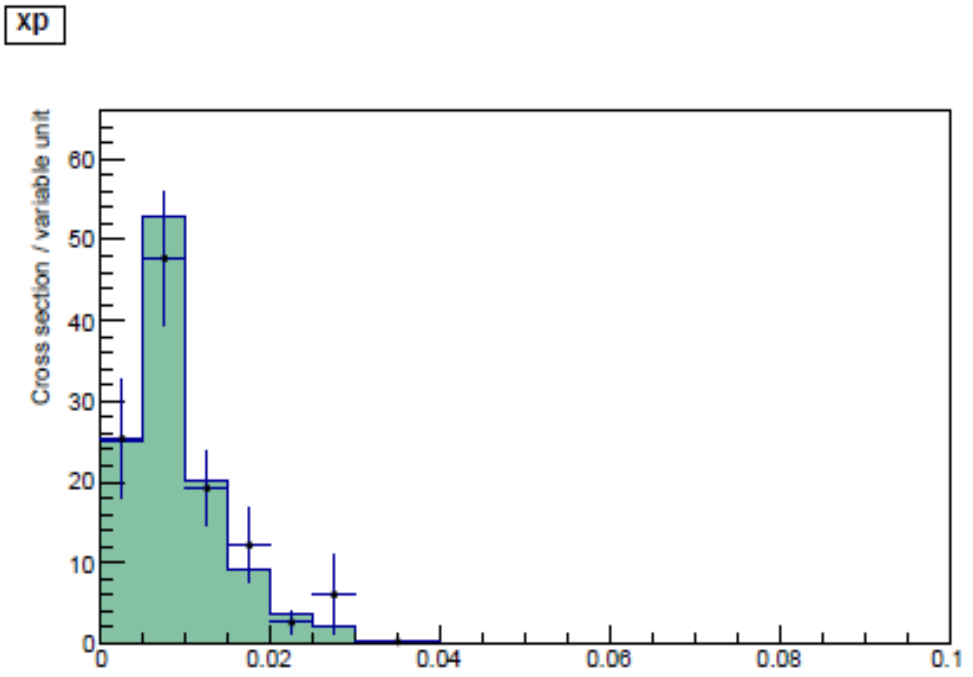
eta(jet) Left: $z_{IP}<0.9$ Right: $z_{IP} \geq 0.9$



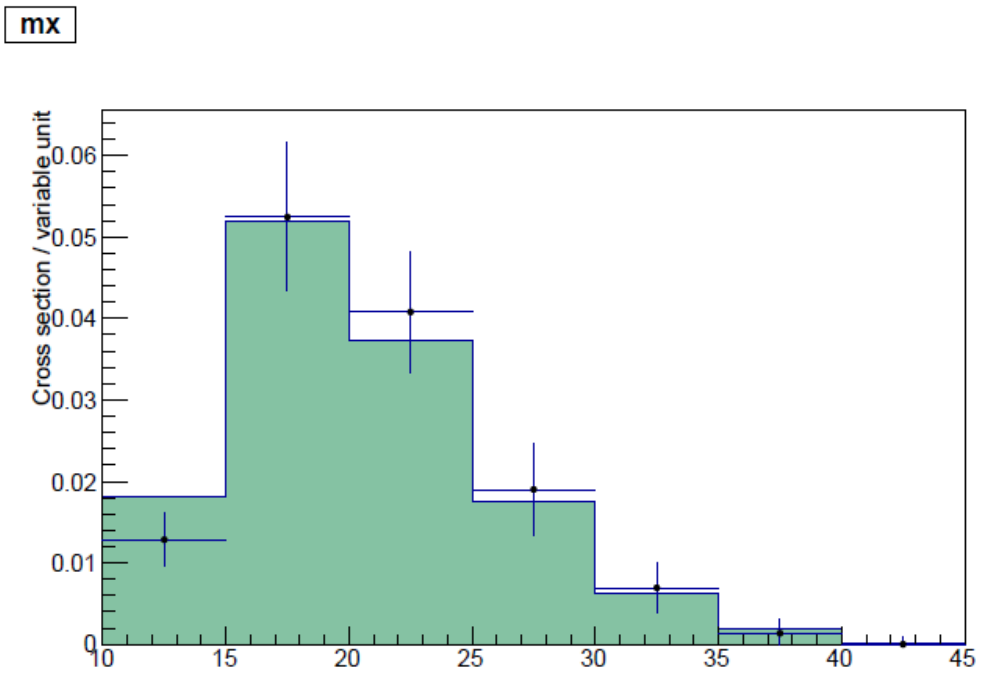


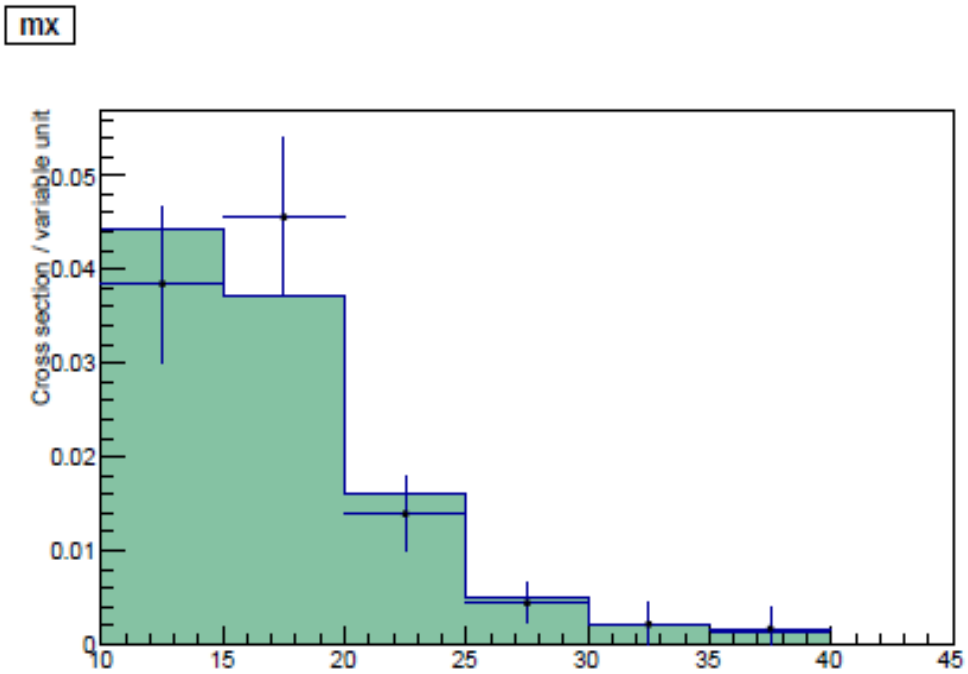
xp Left: z_{IP}<0.9 Right: z_{IP} ≥0.9



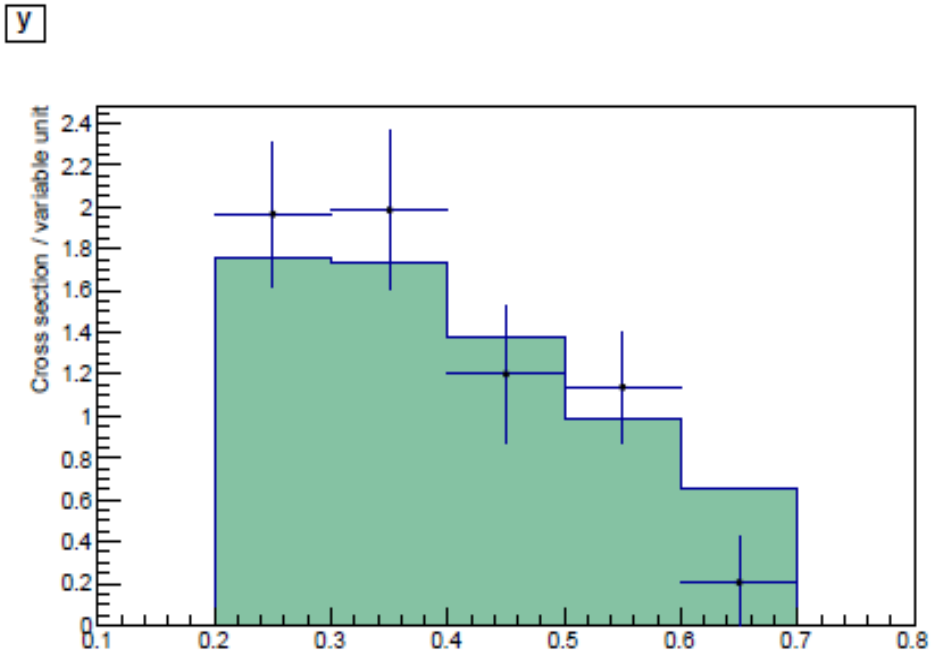


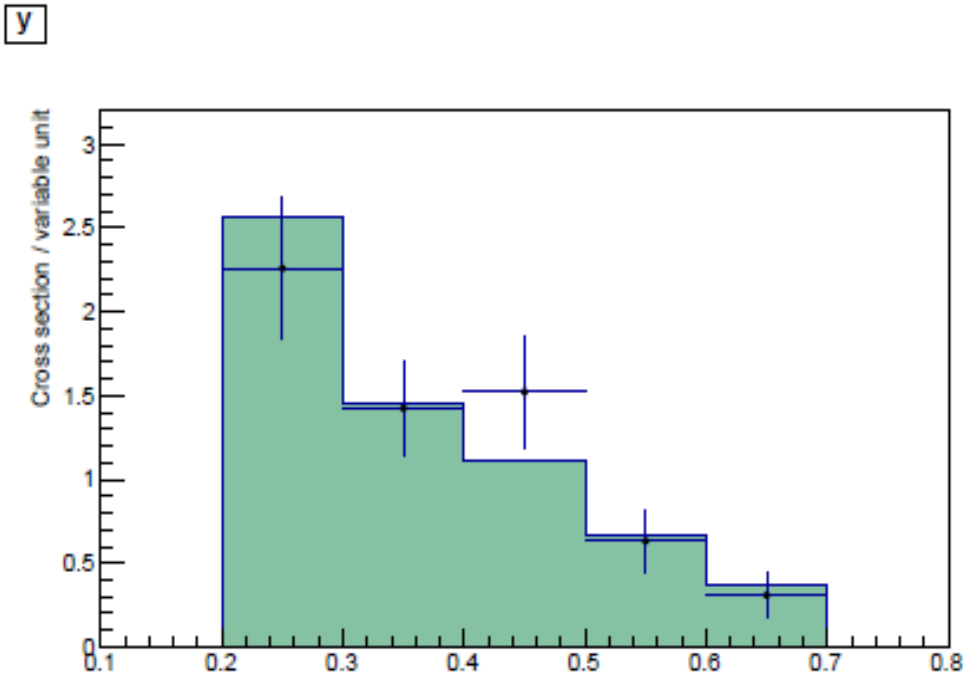
Mx Left: $z_{IP}<0.9$ Right: $z_{IP} \geq 0.9$



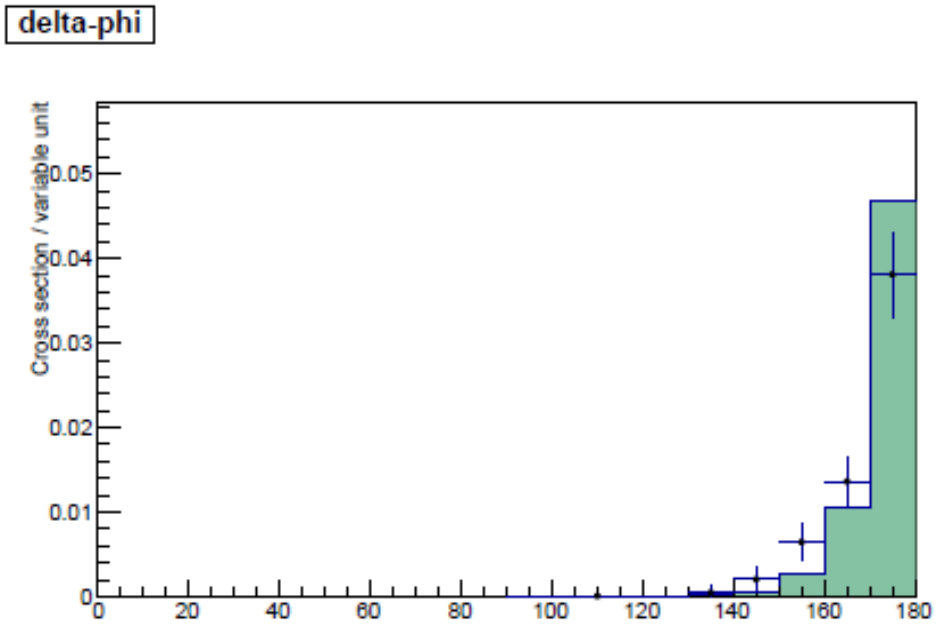


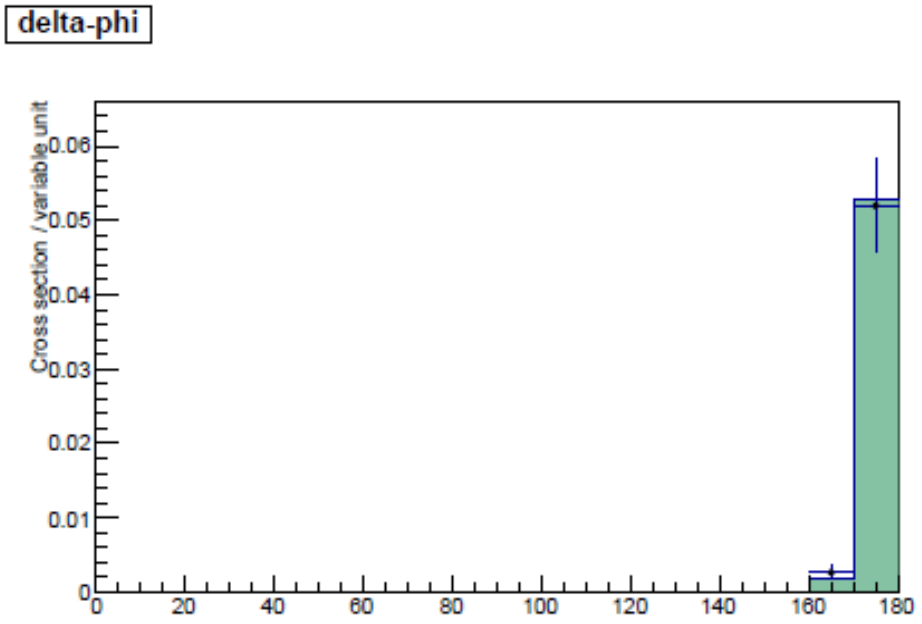
y Left: $z_{IP}<0.9$ Right: $z_{IP} \geq 0.9$



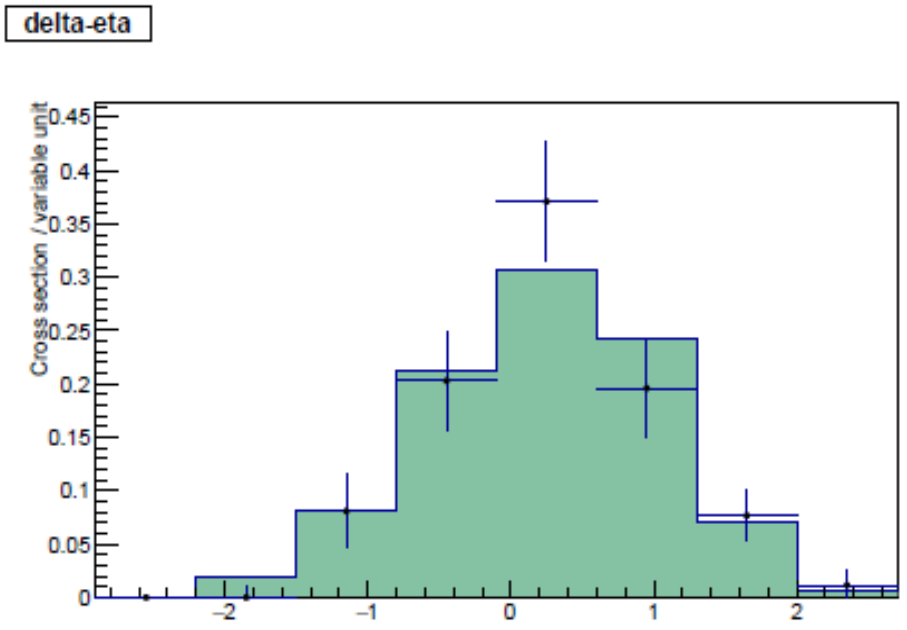


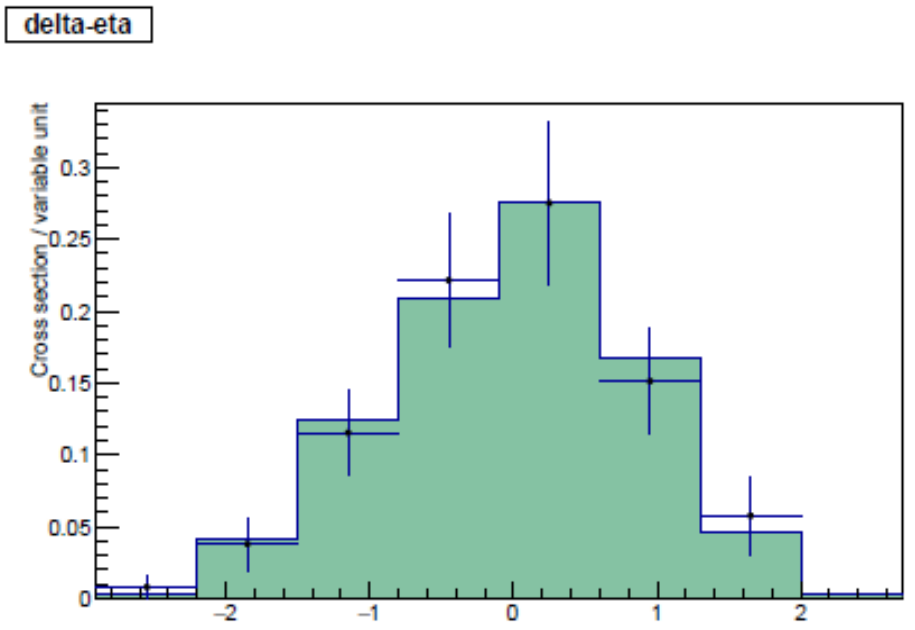
delta-phi Left: $z_{IP}<0.9$ Right: $z_{IP} \geq 0.9$





delta-eta Left: z_{IP}<0.9 Right: z_{IP} ≥0.9





Conclusions

The region $z_{IP} \geq 0.9$ is described perfectly by Rapgap
and the region $z_{IP} < 0.9$ is described very well.

All this is consistent with an enhancement of the pomeron PDFs alone in the top bin.

We are inclined not to put these plots in the paper but just to make a statement that Rapgap describes both regions well, and that the $z_{IP} \geq 0.9$ region is strongly enhanced in the direct photon region.