DVJ/ψP Update: Exclusive J/ψ Production in *ep*

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Residue background Checks

Goal: Estimate inclusive DIS background to DVMP channel

- *ep* inclusive DIS sample provided by Stephen Maple /gpfs02/eic/maples/RECO_pythia6_ep_early_science/ on RCF @ BNL
- One sample set with $1 < Q^2 < 10$
- Identify inclusive DIS events that mimic exclusive J/ψ process

Event Selection Process

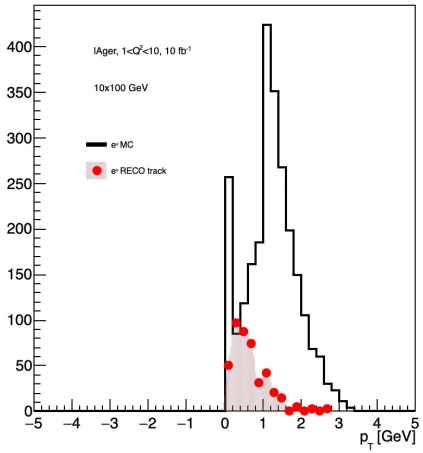
- An event has three final-state particles (i.e. e',p', and J/ψ)
- Roman Pots and B0 are considered for p' reconstruction

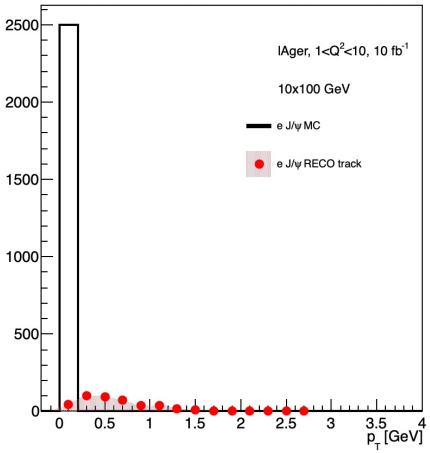
Result – ep DIS Background

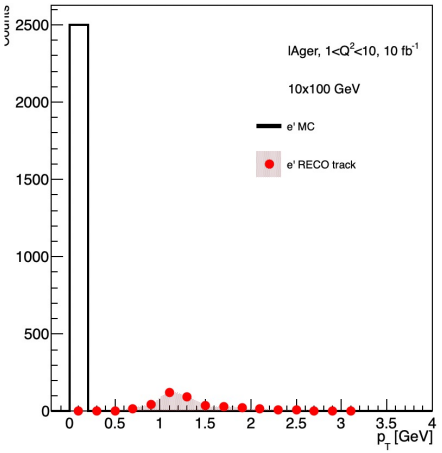
1. RP proton reconstructed
2. B0 proton reconstructed
3. Electron reconstructed
4. J/ψ mass reconstructed

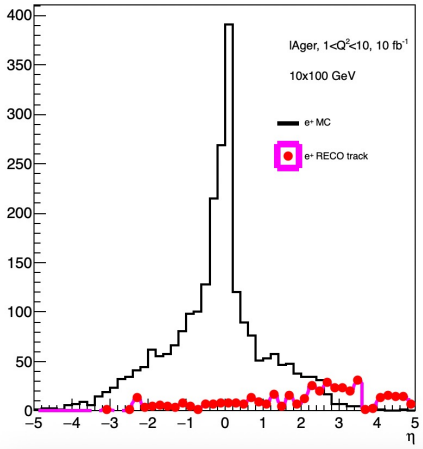
Selection	10x130 GeV^2 $1 < Q^2 < 10$
1	3.462% 8575/247700
2	31.289% 77503/247700
3	13.343% 33052/247700
4	0.8% 2000/247700

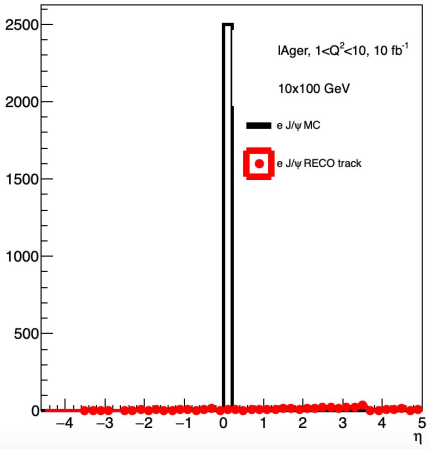
Result – ep DIS Background

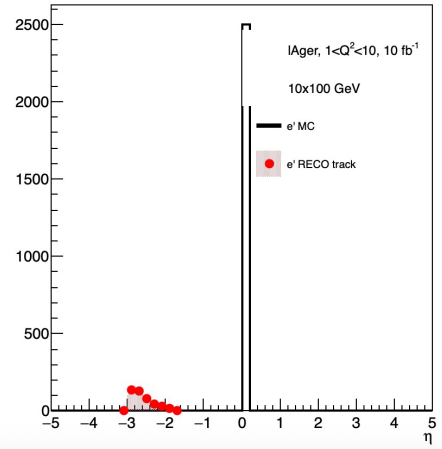












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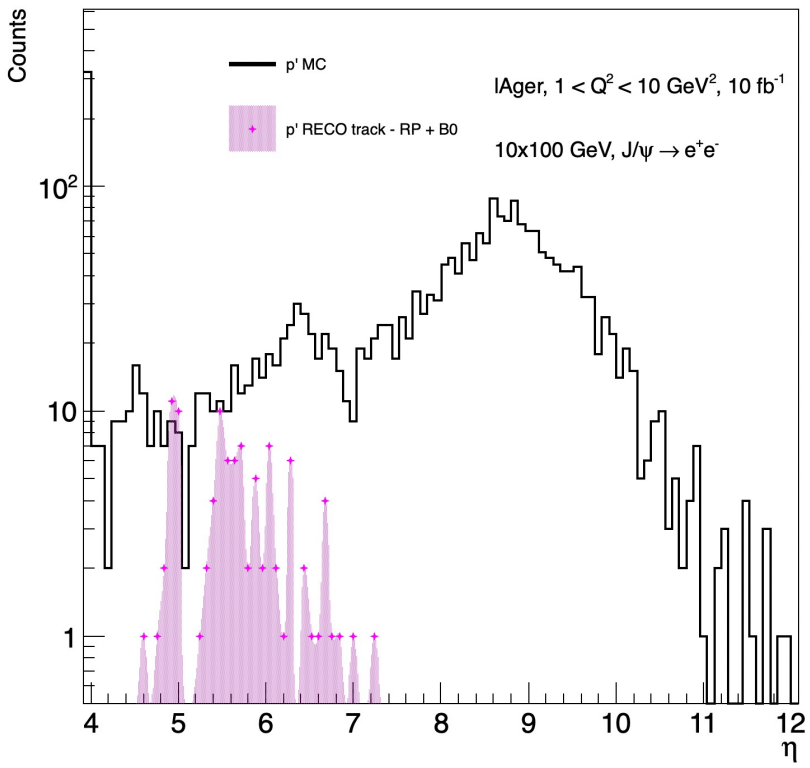
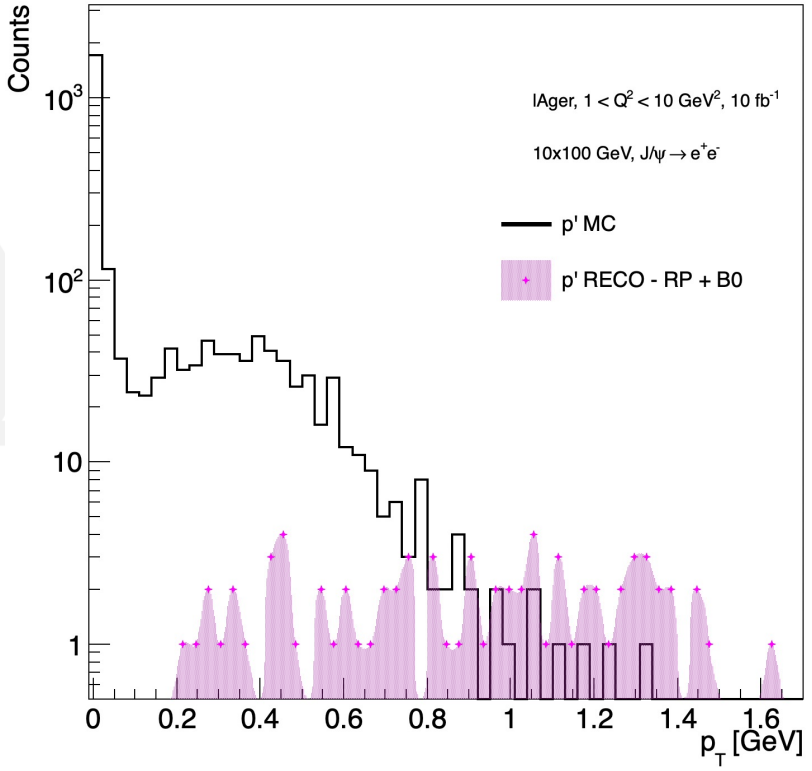


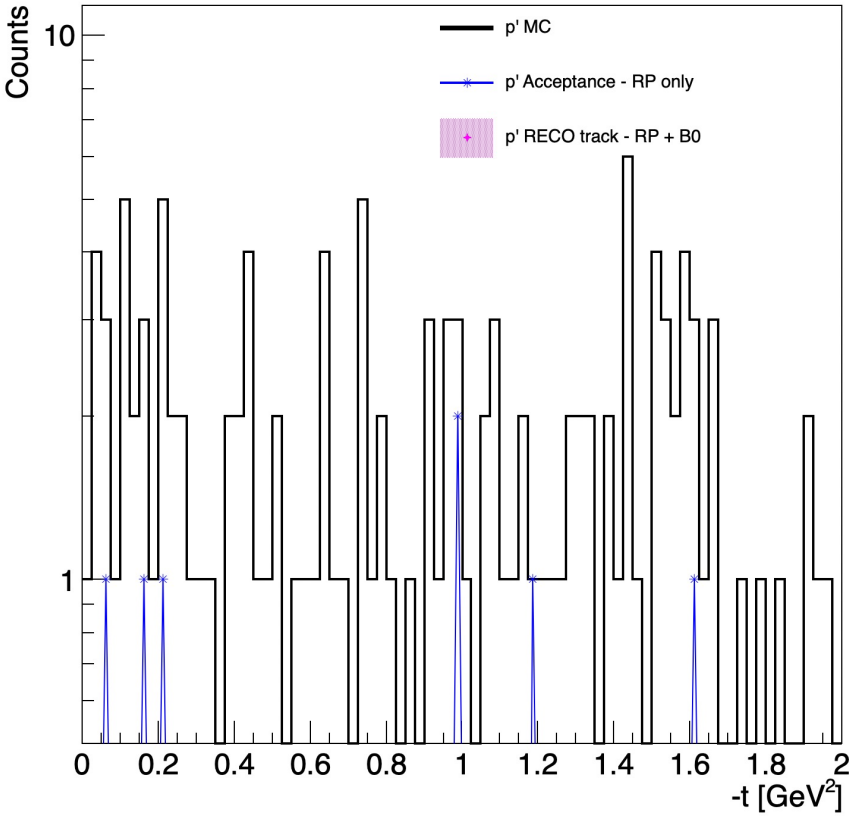


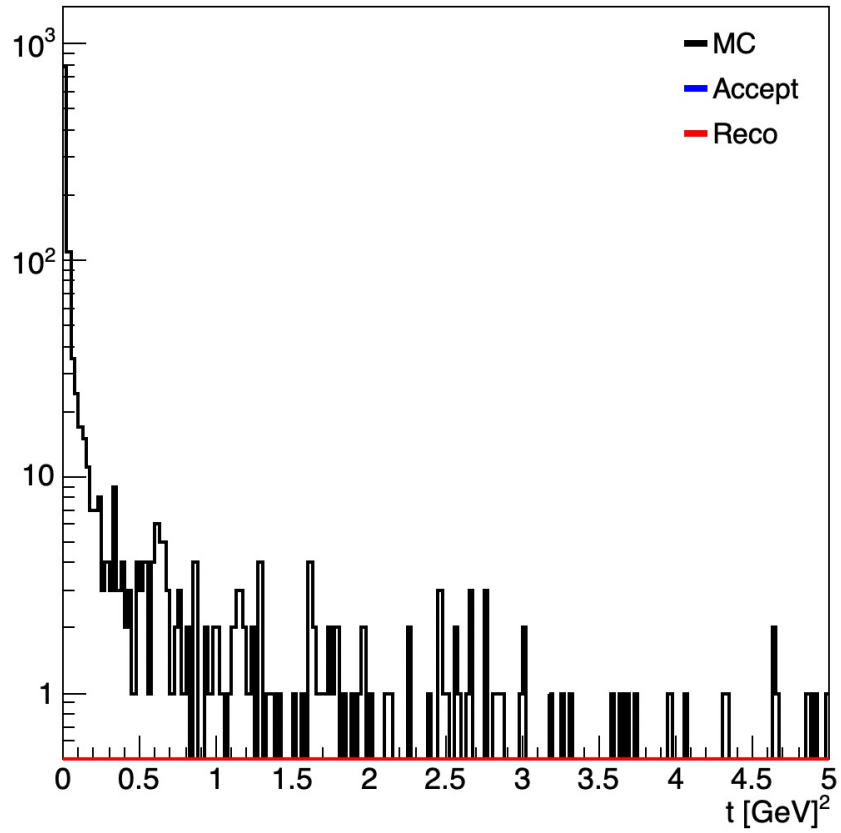
Result – ep DIS Background

$t = (p' - p)^2$

$P_{A'}^{\mathrm{corr}} = [p_{x,A'}, p_{y,A'}, (p_{A'}^{+} - p_{A'}^{-})/2, (p_{A'}^{+} + p_{A'}^{-})/2]$

$t_{\mathrm{corr}} = (P_A - P_{A'}^{\mathrm{corr}})^2$





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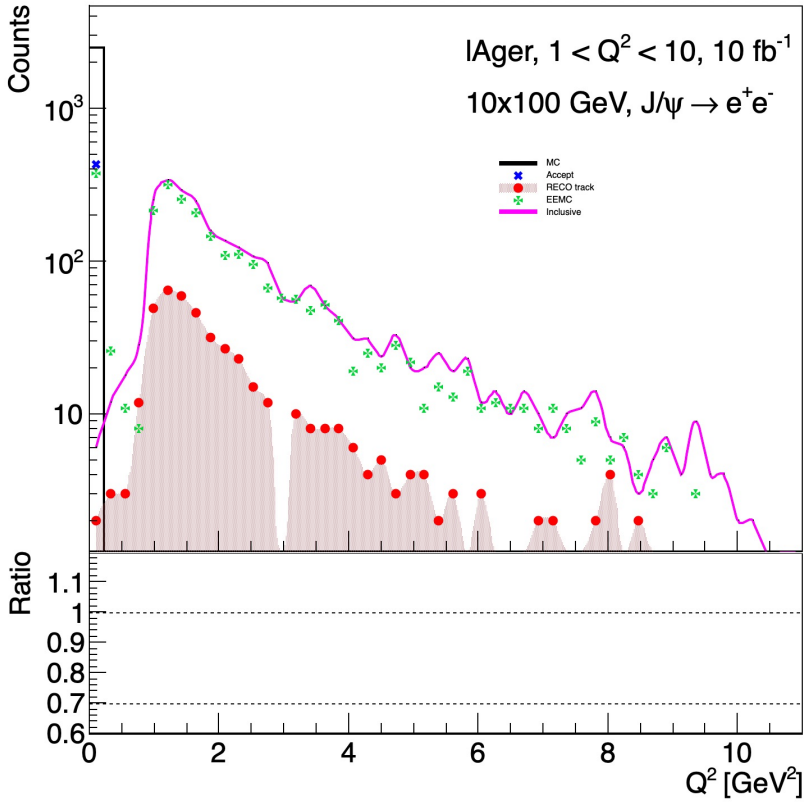

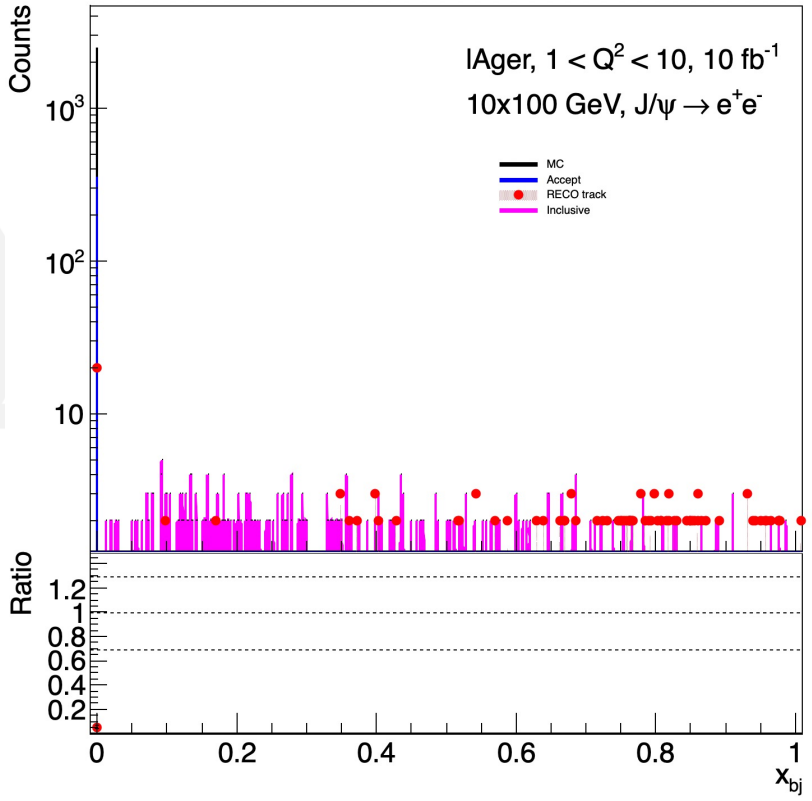

Summary

- There seems to be more background residue in the B0 detector, a possible explanation is due to the lack of PID over there.