Inclusive PWG Update

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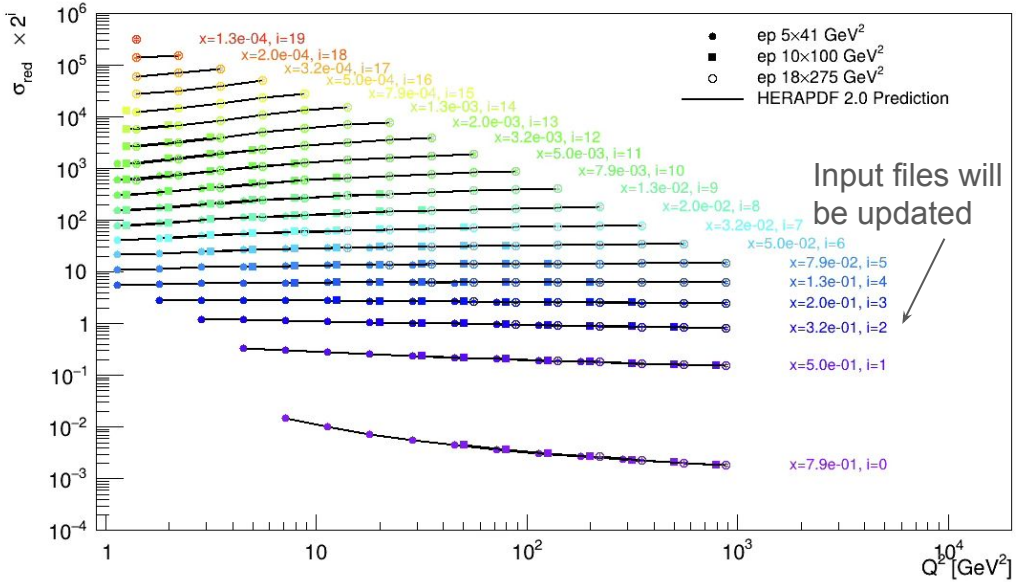
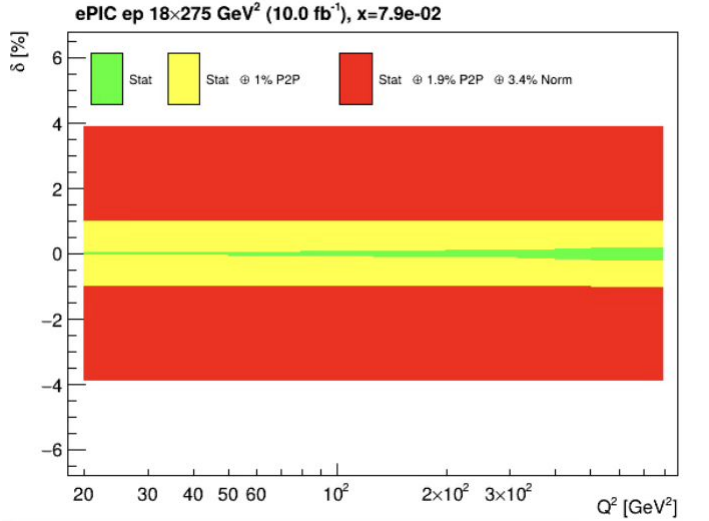
preTDR plan and progress

- Section 4.2.1 Electron Identification
- Section 4.4.1 Inclusive Processes
  - Merge figs 4.5, 4.6, 4.7 into one plot showing all energy configs simultaneously (where there is an overlap of errors show that we can control systematics that way)
  - Add a bin migration plot
  - Link and make clear systematics used in plots throughout the text
  - Fill section 4.4.1.3 (background effects)

New figure to replace 4.5, 4.6, 4.7

Stephen M. (U. Birmingham)

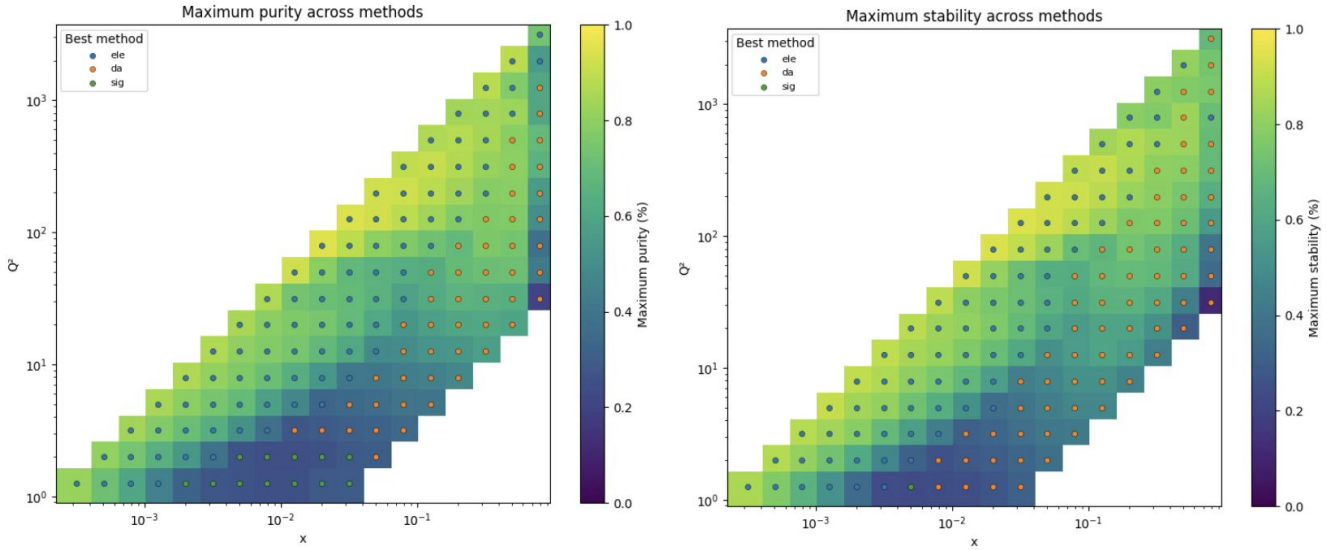




- Introduced offset in Q2 axis for visibility
- Sigma red values now taken from PDF prediction rather than full sim in order to keep related points next to each other (plot looks ugly when you've got differences due to pythia values)
- actually include uncertainties on plot according to "conservative" scenario (red band in right plot as example), but smaller than markers
- is all okay with legend/labels etc?

Bin migration

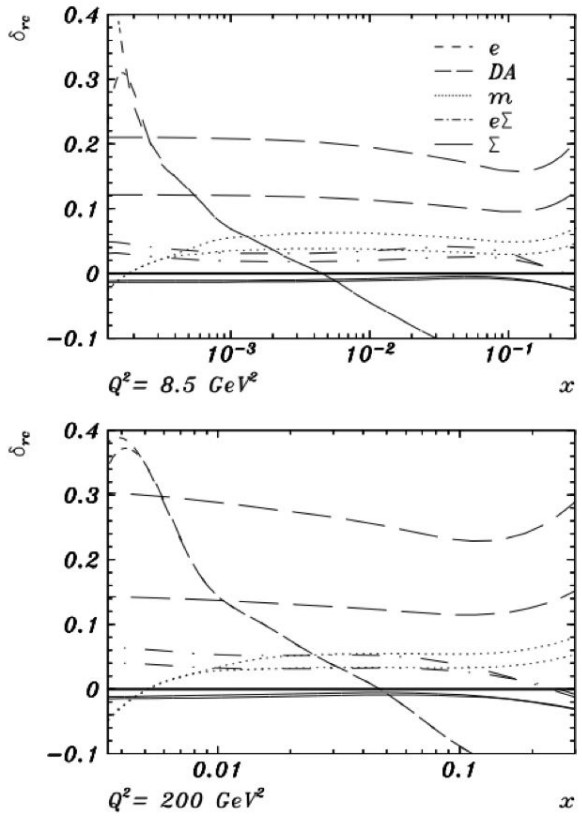
Stephen M. (U. Birmingham)



- Bin migrations are dependent on binning scheme and choice of recon method
- Multiple methods are plotted on a single plot by showing best purity/stability method
- What quantity do we want to use as a bin migration metric? Purity, stability, something else?
- plots are for a single c.o.m. energy. Need 3 plots minimum to show bin migrations for the main beam configurations.

Radiative corrections

Stephen M. (U. Birmingham)



https://arxiv.org/abs/hep-ex/9412004

- Corrections depend on values of kinematic variables and choice of reconstruction method
- Barak identified issue with Djangoh
  - Simulations crashed due to either unhadronised partons or loops in parent trees
- Next need to run ePIC simulation (using Bham cluster, not campaign) and will put the EVGEN and RECO files on SDCC and checked
- Would like to look at RAPGAP for comparison and perhaps get indication of radiative correction systematic

Beam background

- Shujie provided script for mixing events
- Barak is preparing some samples:
  - Single Q2 > 1 GeV2 collision + 2 us worth of background processes
  - Photoproduction events mixed with the beam backgrounds
  - Only beam backgrounds. No actual ep collisions will be present in this sample
- Will talk to Sakib about producing this at simulation campaign as well

- Semi-related: chatted with Derek to update electron finder and adapt the algorithm interface