SIDIS PID discussion points

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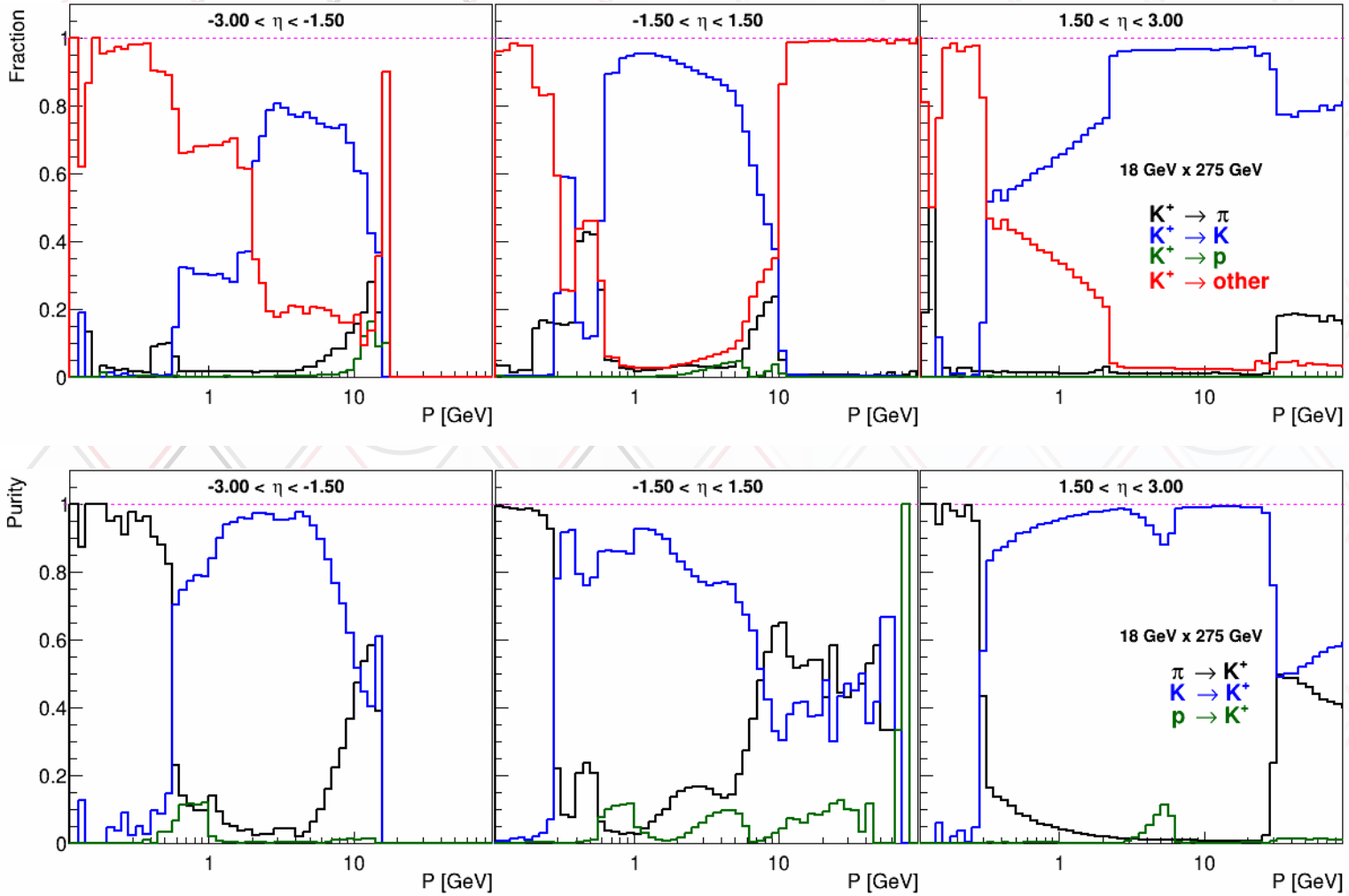
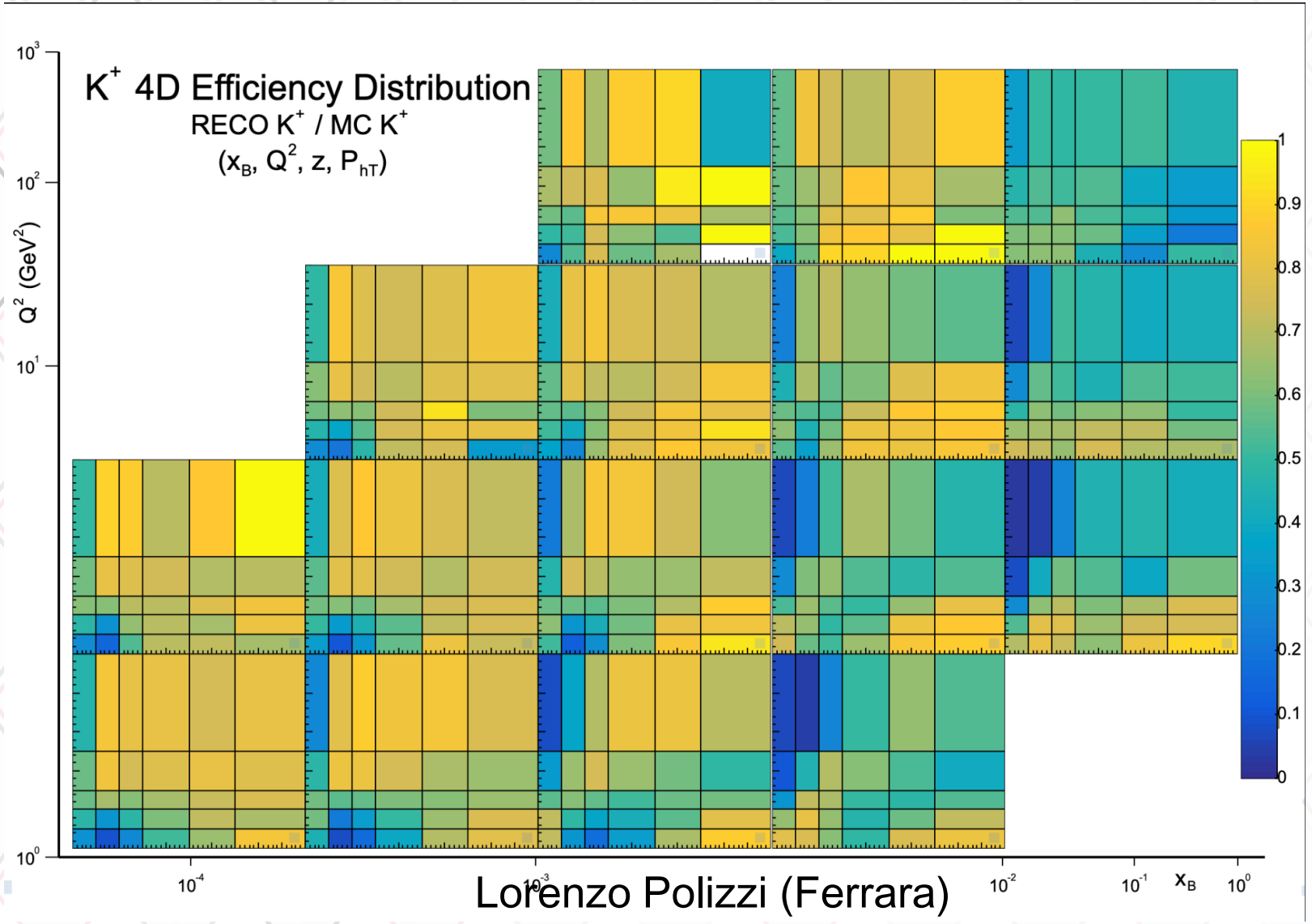
preTDR plots: PID efficiencies and purities

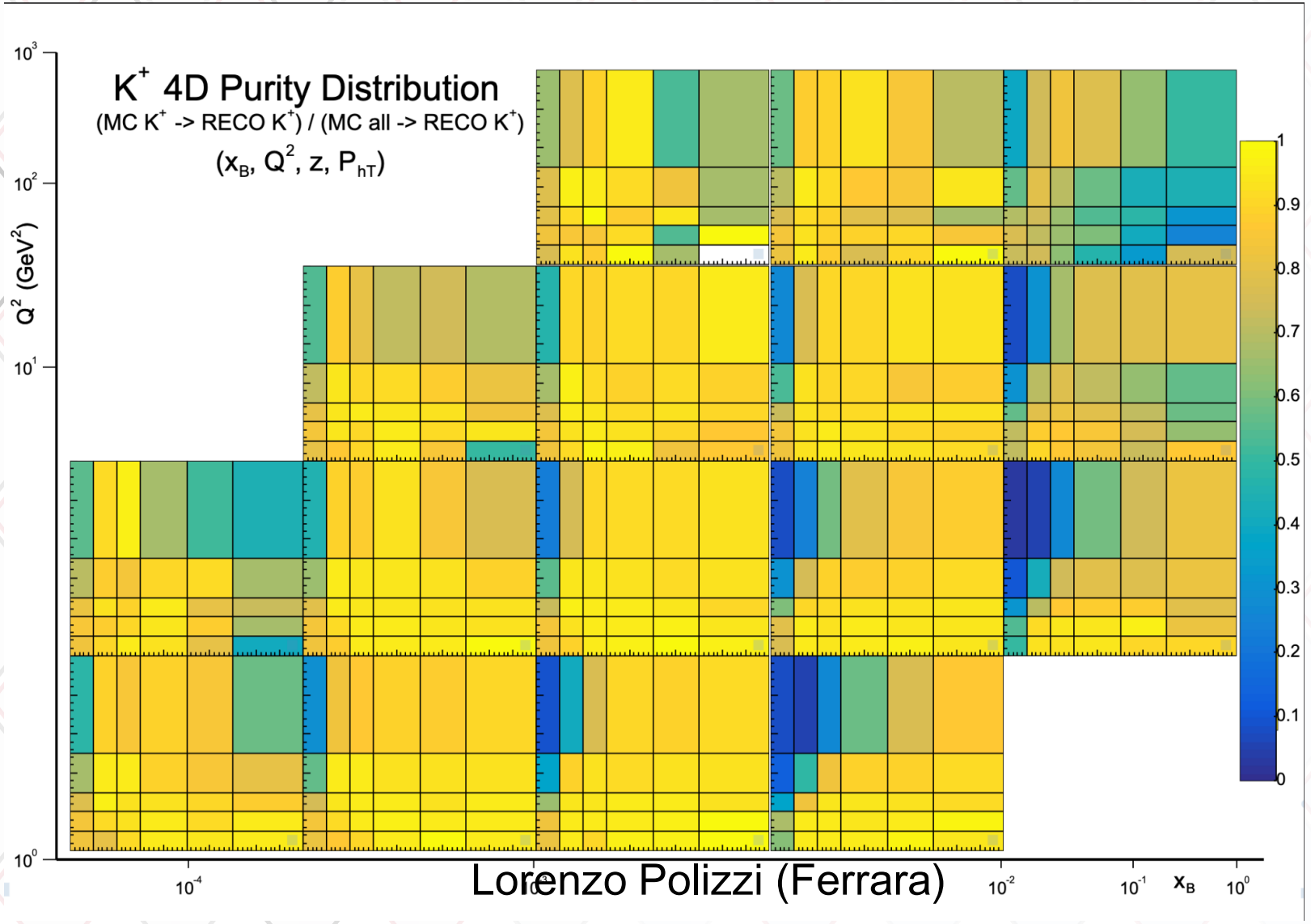


- Kaon PID efficiencies and purities vs hadron P in three rapidity ranges
- Similar plots for pions and protons available
- Improvements expected from proper likelihood based PID reco

4D efficiencies for kaons



4D purities for kaons



Discussion points

- What are the aspects we need:
  - Flexibility: Some analyzers will need to sacrifice statistics in favor of purity while others optimize statistics → need variable PID selection choices (ie likelihoods from each detector)
  - Unfolding capability: Obtain data-based PID efficiency matrices in relatively fine lab P - η binning for people to unfold efficiencies/fake rates
  - Holistic PID: not only π/K/p separation from dedicated PID detectors, but also include e/h and e/μ ID information from calorimeter(+tracking)
  - Systematics: have uncertainties on PID effi matrices to be able to assign systematic uncertainties due to PID on physics measurements
- For early systematic estimates, have tables of π/K widths and centers as a function of lab P – η