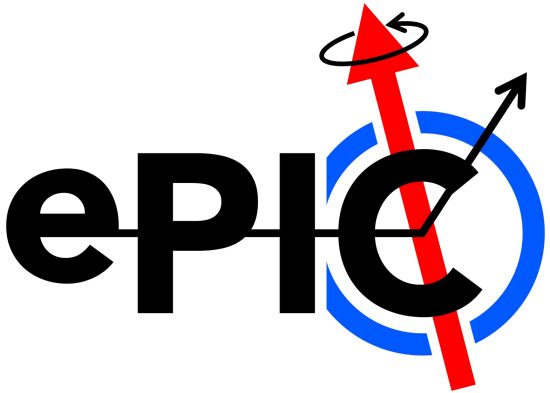
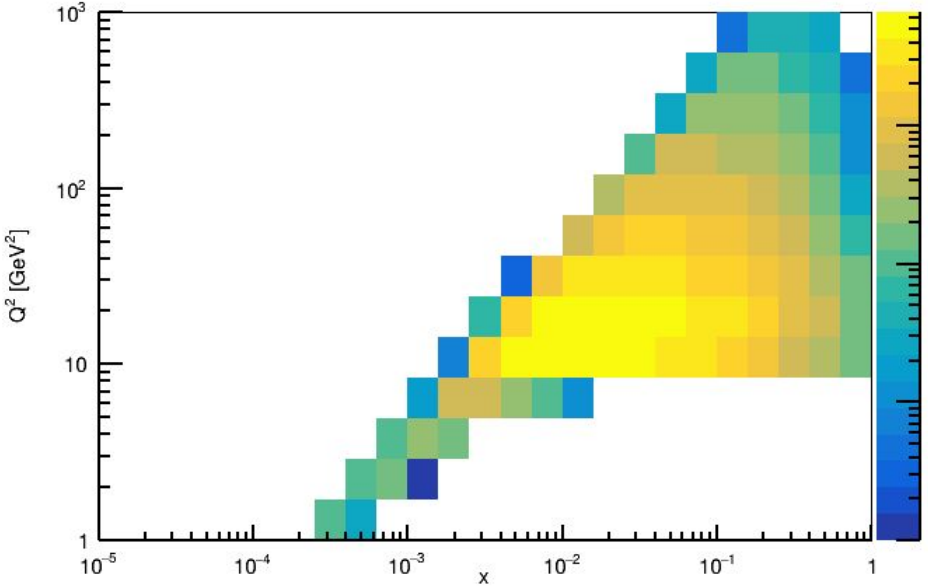
hadron PID simulations v.1

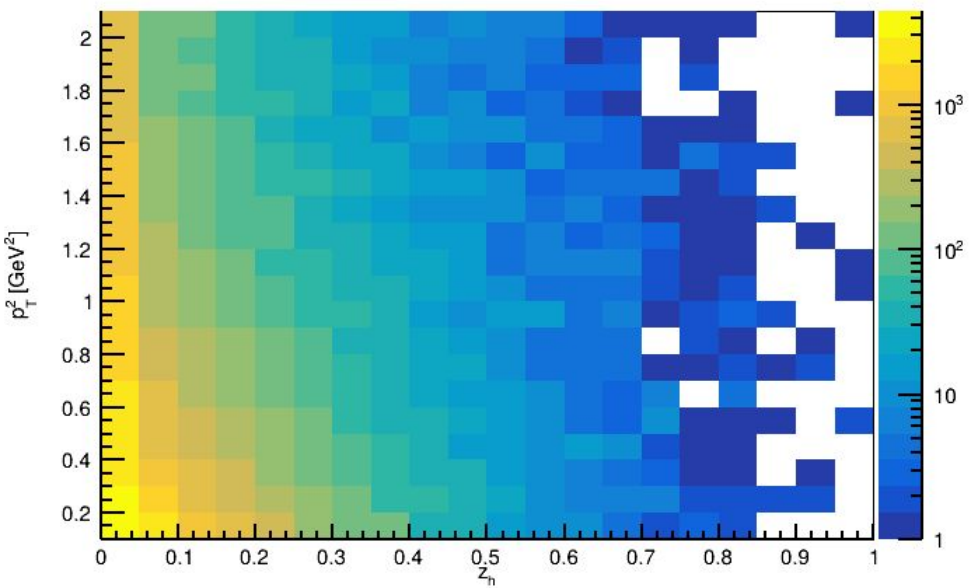
M. Osipenko



Kinematics in 10x100 beams

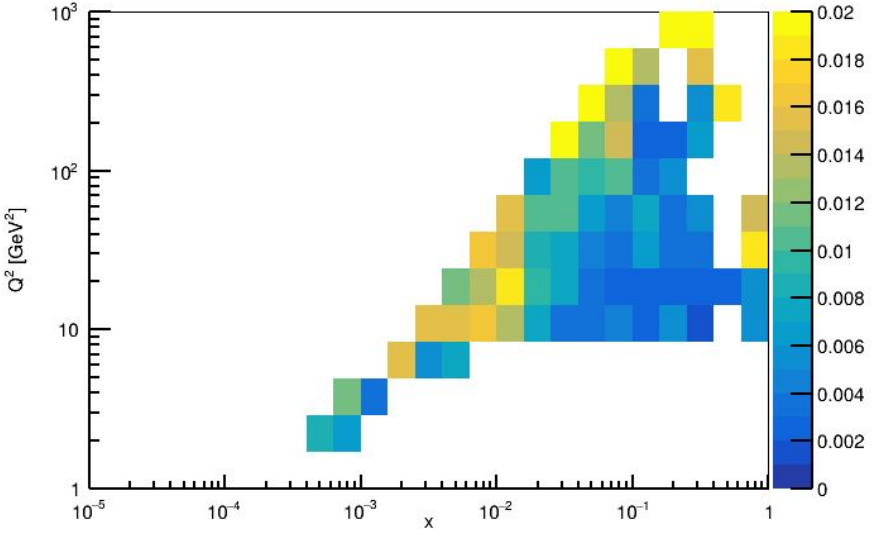
- no cuts, directly from Pythia simulations;
- reconstructed variables were used to fill histograms;
- Q^2>10 GeV^2 dataset of release 25.06.1.

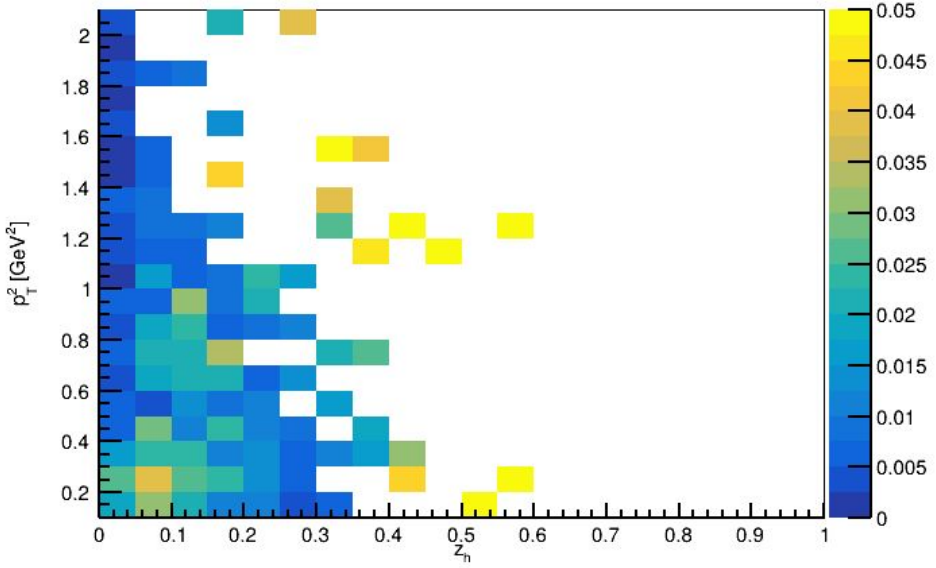




Fraction of π^+ with wrong reconstructed PID

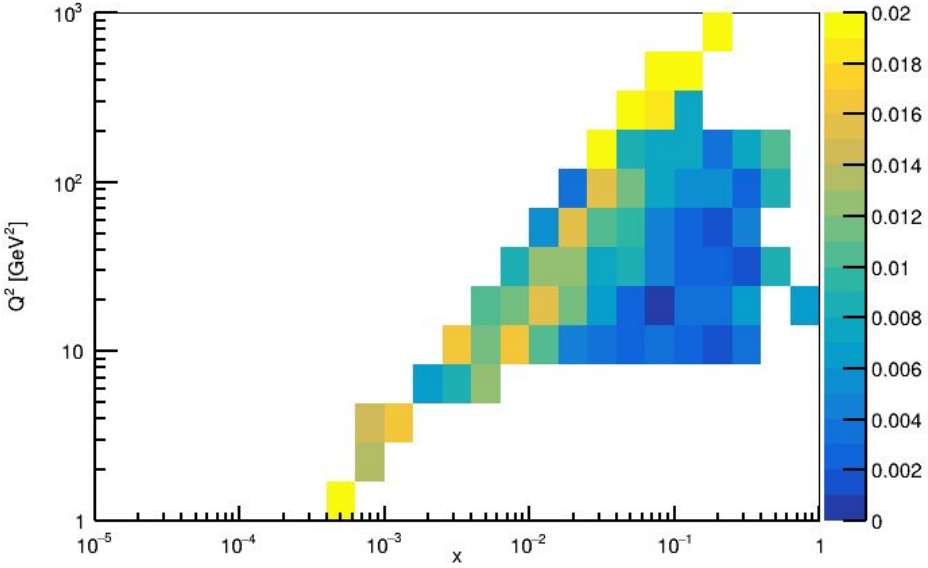
- 0.2% - 2% fraction of π^+ reconstructed with wrong PID;
- no clear dependence on kinematic variables;

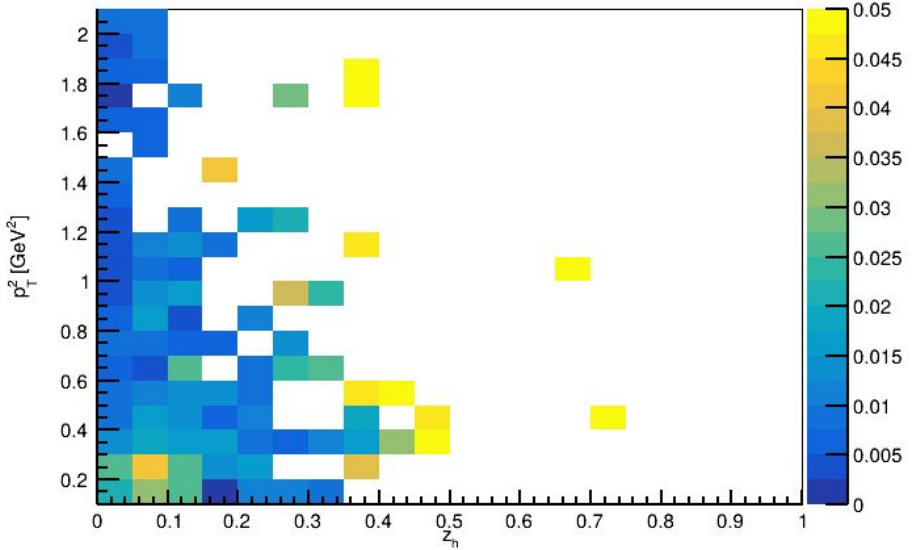




Fraction of π^- with wrong reconstructed PID

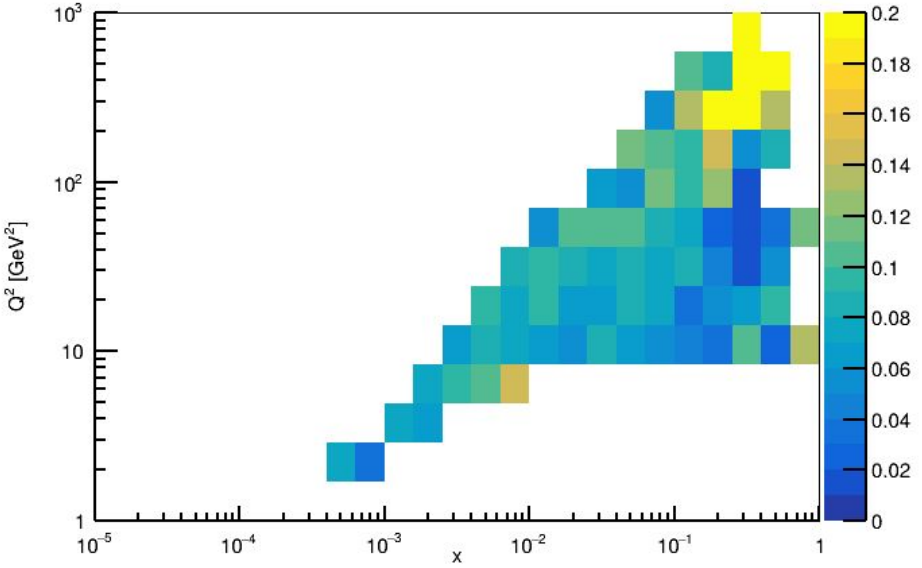
- 0.2% - 2% fraction of π^- reconstructed with wrong PID;
- no clear dependence on kinematic variables;

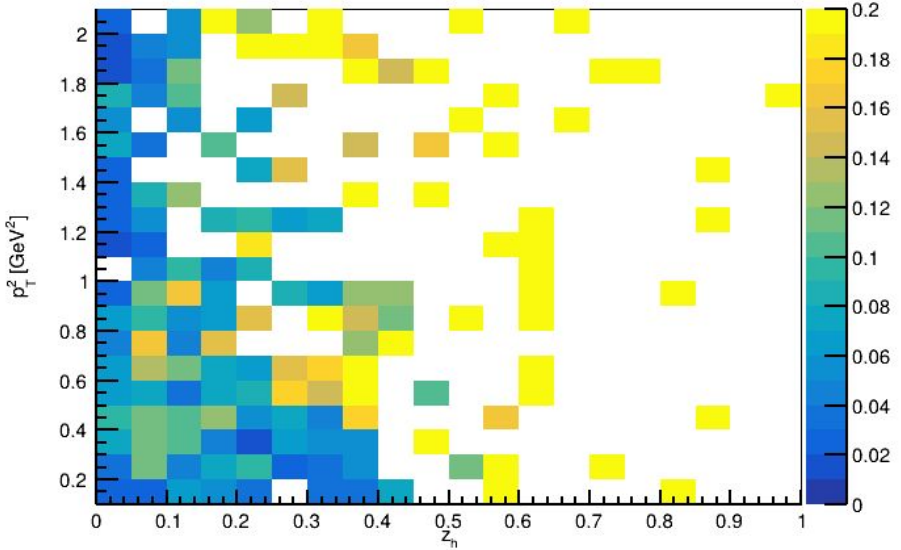




Fraction of K^+ with wrong reconstructed PID

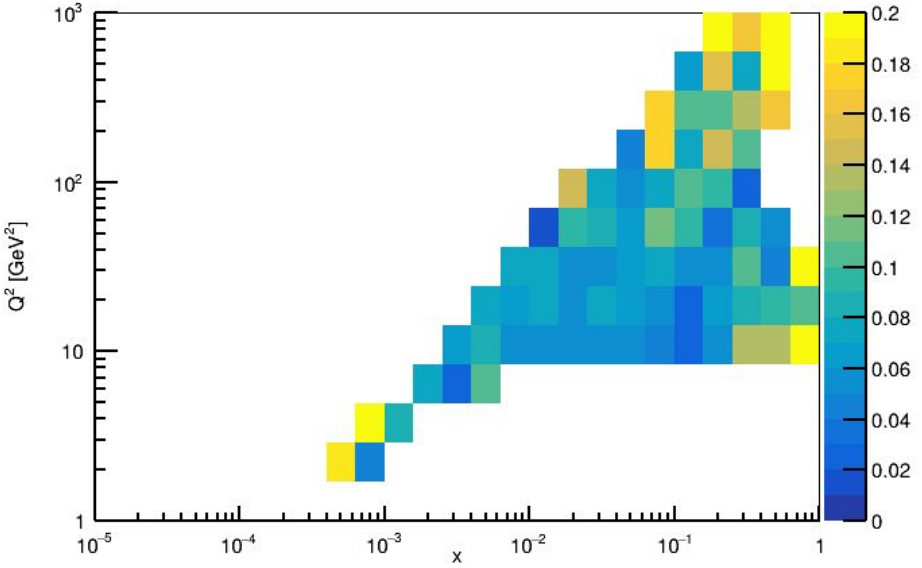
- 3% - 15% fraction of K^+ reconstructed with wrong PID;
- no clear dependence on kinematic variables;

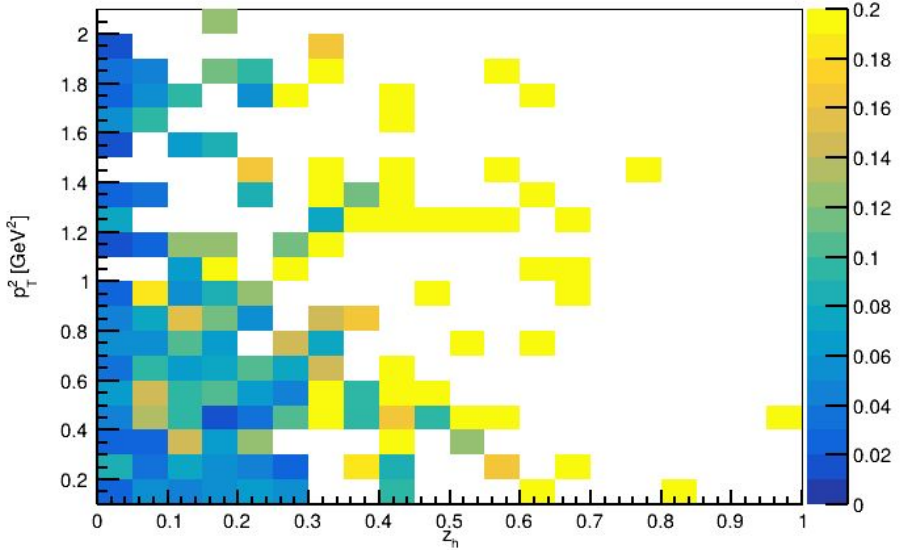




Fraction of K^- with wrong reconstructed PID

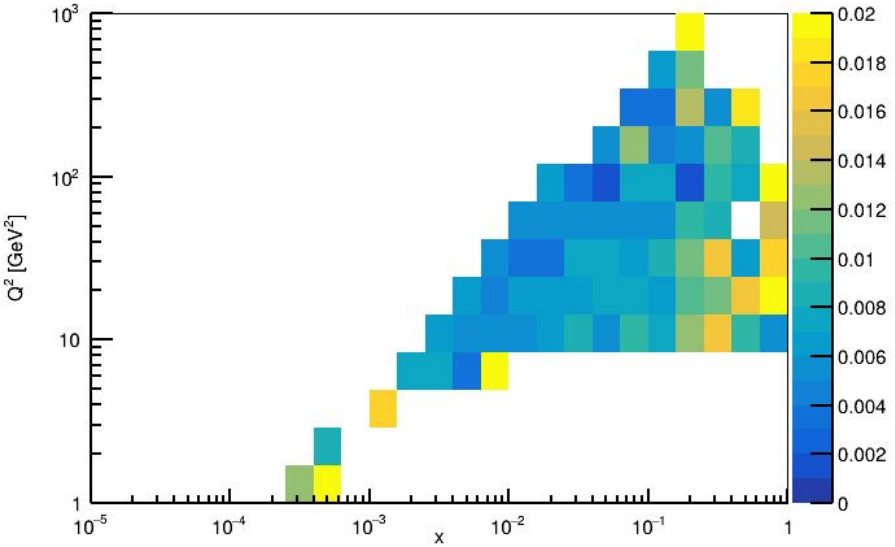
- 3% - 15% fraction of K^- reconstructed with wrong PID;
- no clear dependence on kinematic variables;





fraction of reconstructed π^+ not produced in DIS

- secondary (gen.status!=1) π^+ also contribute to the observables, but this contamination is also <2%;
- these also constitute a contamination, but not due to PID.



Bin migration of reconstructed events

- x,Q^2 bins are clearly not optimized to the actual ePIC resolution;
- to reduce systematic uncertainties the bins should be chosen to keep bin migration <2 sigma of the Normal distribution, or <0.05.