Q^2 acceptance

Francesco Bossù and Niveditha Ramasubramanian

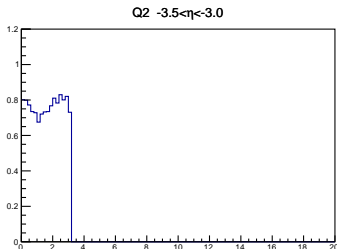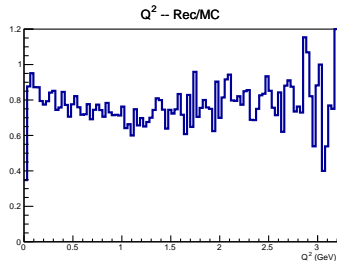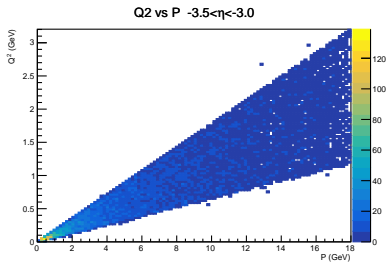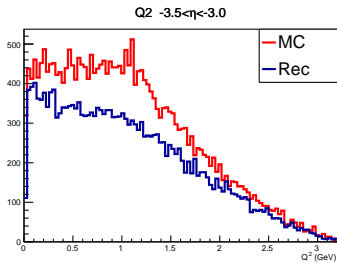CEA Saclay

February 2, 2023

Setup

- ▶ Single electron simulation (gun)
- ▶ **Flat in theta and momentum**
- ▶ $Q^2 = -(beam - e')^2$
- ▶ $beam = (0, 0, -E, E)$, $E = 18 GeV$ (other energies in backups)
- ▶ Three regions considered, backward, central, forward. Three bins in rapidity for each region.
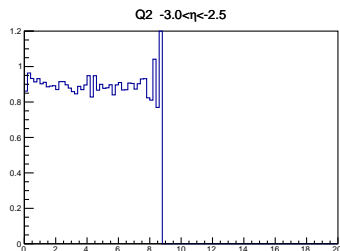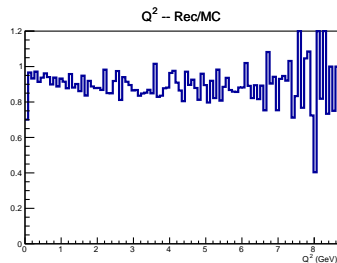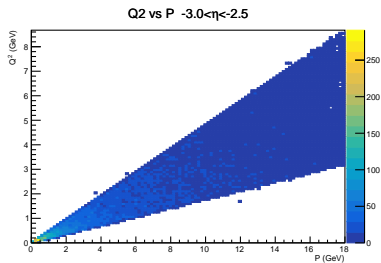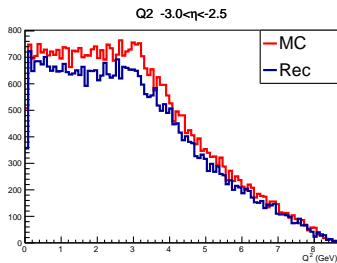
backward − $-3.5 < \eta < -3$

Beam: 18GeV; Single electron gun, flat in theta and momentum

Beam: 18GeV; Single electron gun, flat in theta and momentum

backward – $-2.5 < \eta < -2$

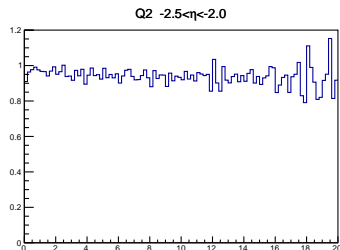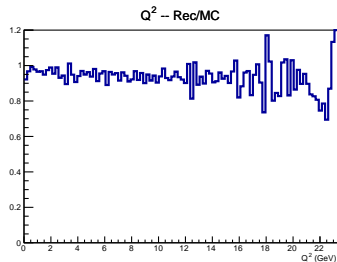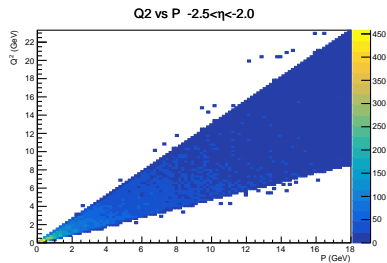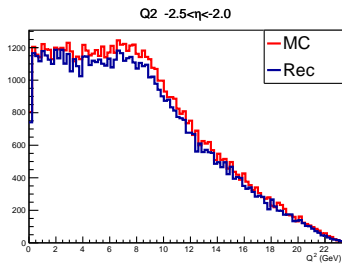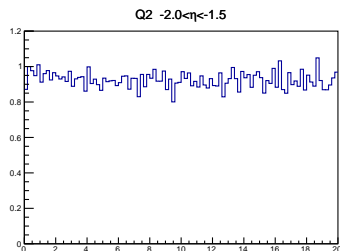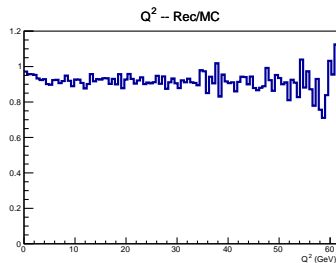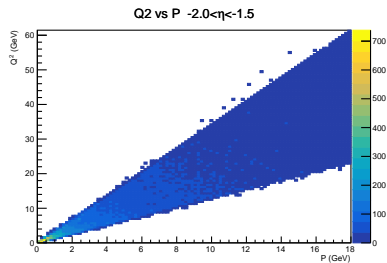Beam: 18GeV; Single electron gun, flat in theta and momentum

backward – $-2 < \eta < -1.5$
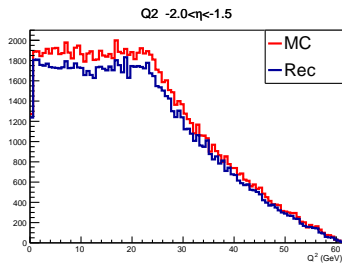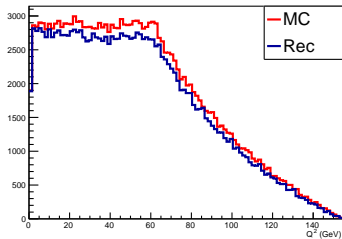
Beam: 18GeV; Single electron gun, flat in theta and momentum

backward − $-1.5 < \eta < -1$

Beam: 18GeV; Single electron gun, flat in theta and momentum

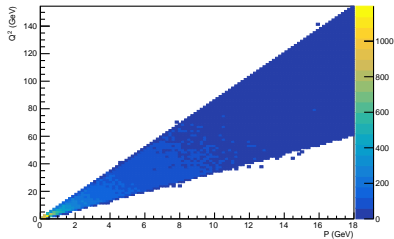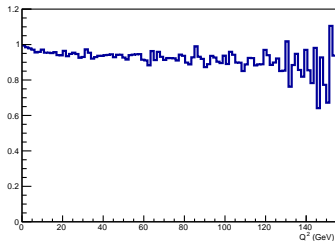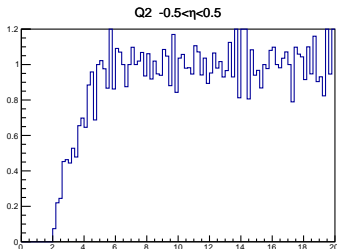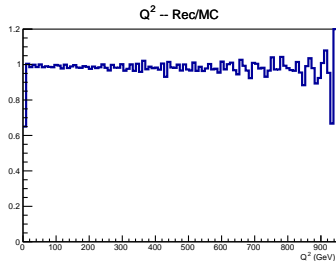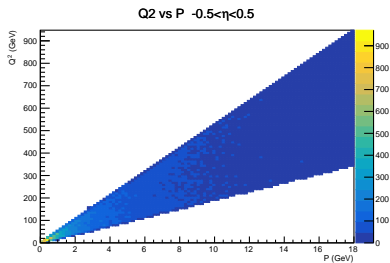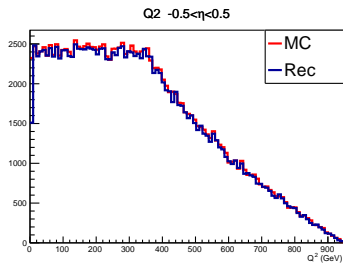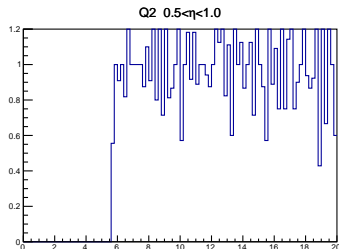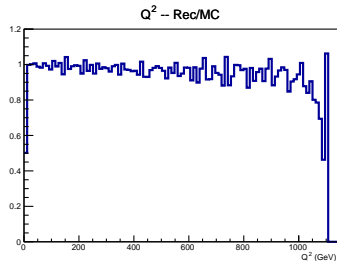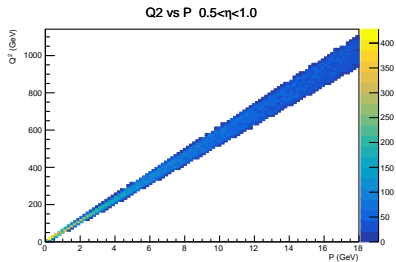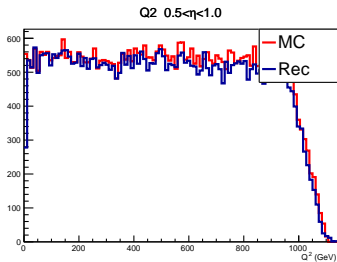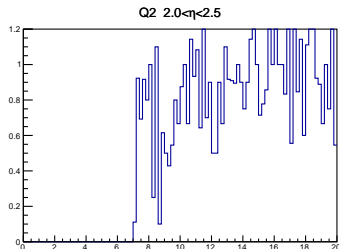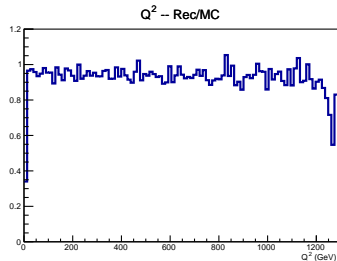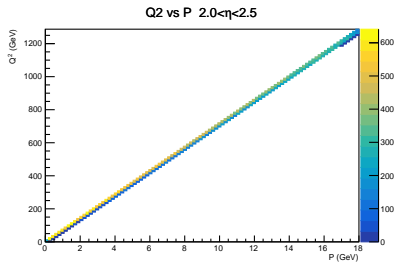Beam: 18GeV; Single electron gun, flat in theta and momentum

central − $-0.5 < \eta < 0.5$

Beam: 18GeV; Single electron gun, flat in theta and momentum

Beam: 18GeV; Single electron gun, flat in theta and momentum

forward – $2 < \eta < 2.5$

Beam: 18GeV; Single electron gun, flat in theta and momentum
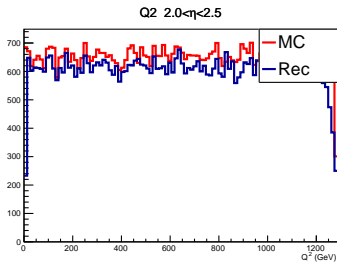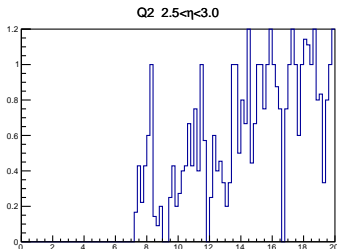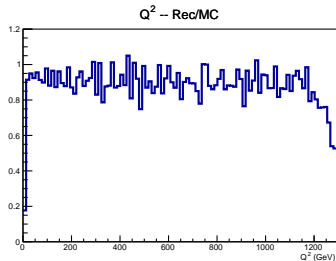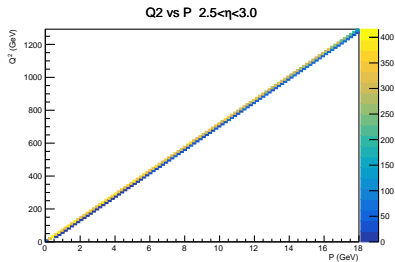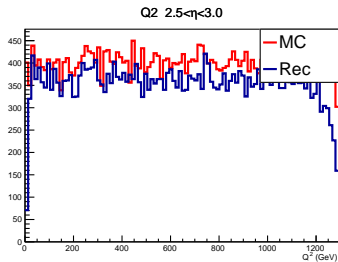
Beam: 18GeV; Single electron gun, flat in theta and momentum
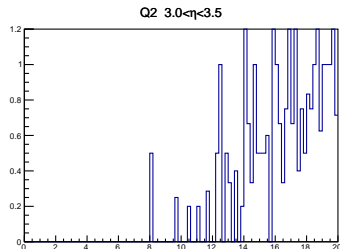
forward – $3 < \eta < 3.5$

Beam: 18GeV; Single electron gun, flat in theta and momentum

Summary

- Single electron simulation flat in theta and momentum
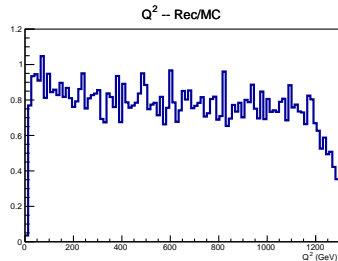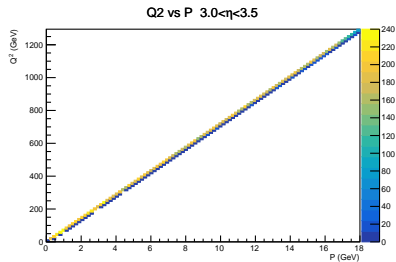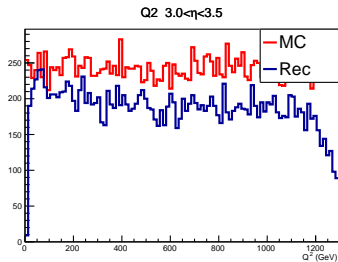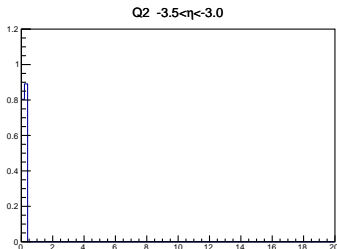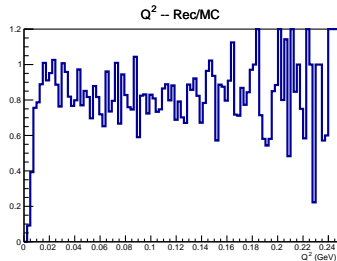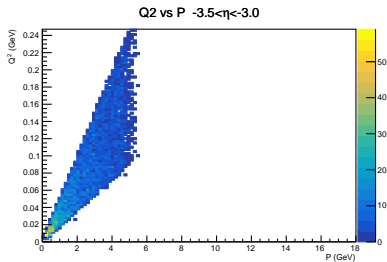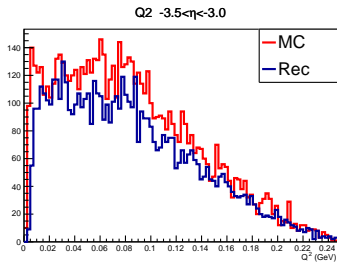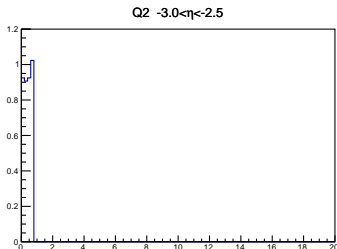- Lower efficiency in the $-3.5 < \eta < -3$ bin.

backup

backward – $-3.5 < \eta < -3$

Beam: 18GeV; Single electron gun, flat in theta and momentum

backward – $-3 < \eta < -2.5$

Beam: 18GeV; Single electron gun, flat in theta and momentum
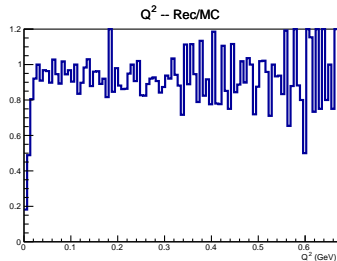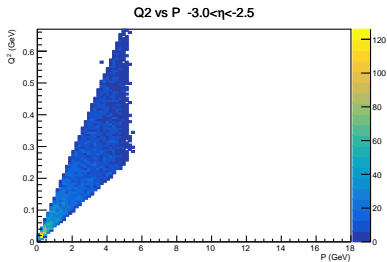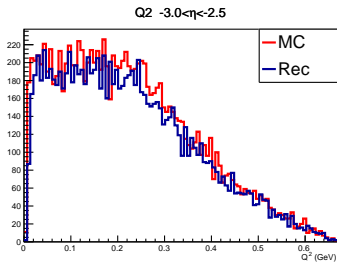
backward – $-2.5 < \eta < -2$

Beam: 18GeV; Single electron gun, flat in theta and momentum
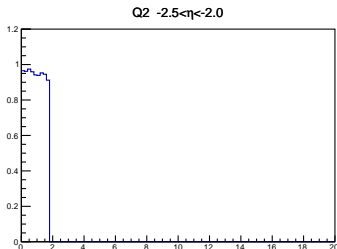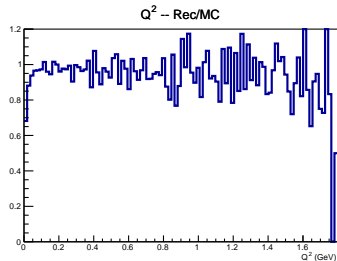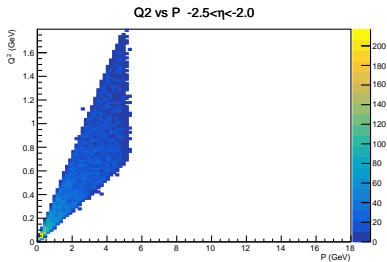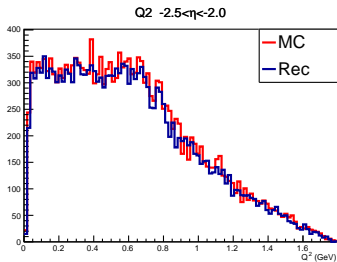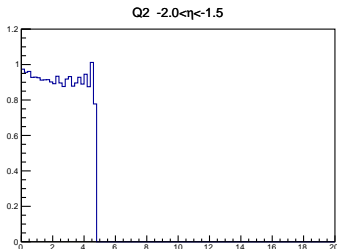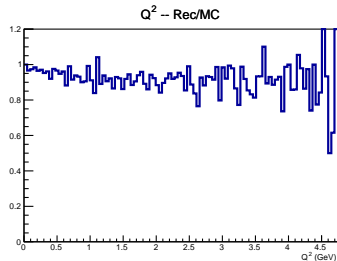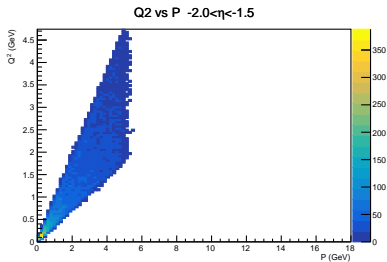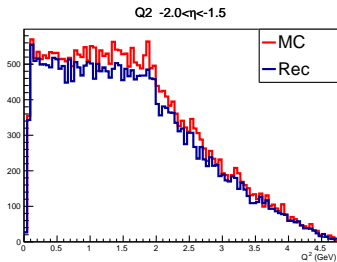
backward – $-2 < \eta < -1.5$

Beam: 18GeV; Single electron gun, flat in theta and momentum

Beam: 18GeV; Single electron gun, flat in theta and momentum