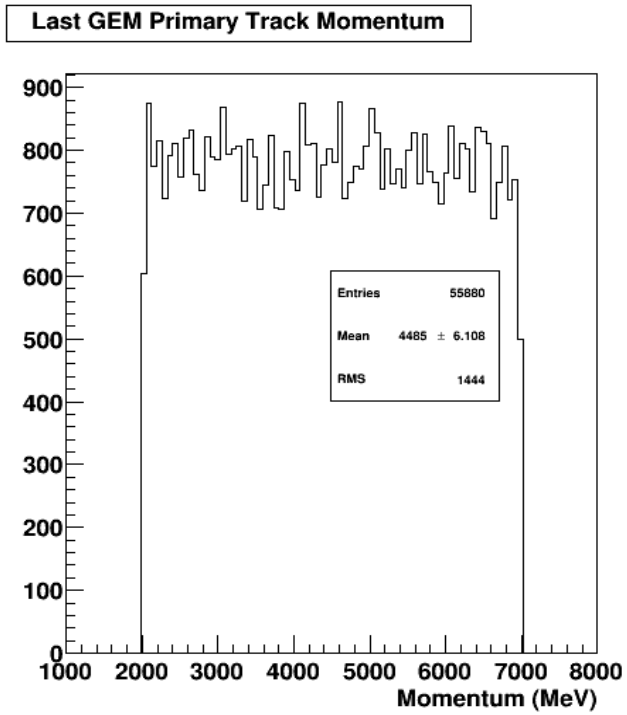
ECAL Update 4

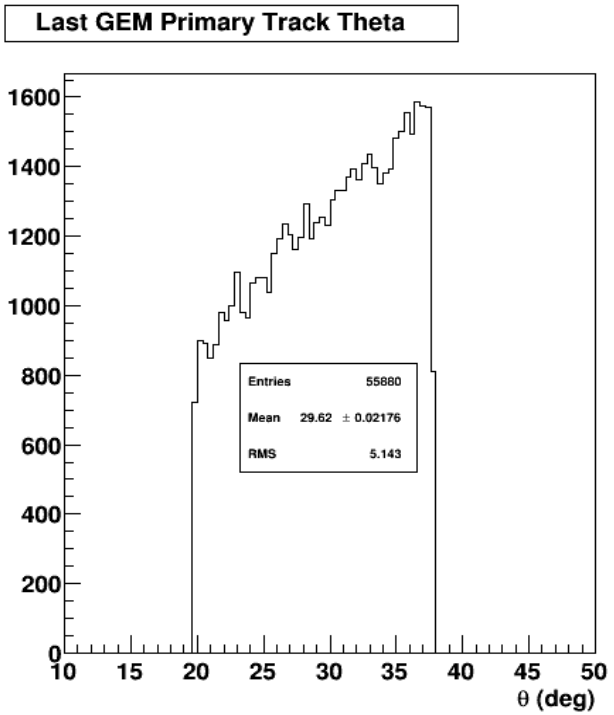
Energy Resolution Simulation

- Input flat distribution : electrons
- No radiative effects in the target
- Setup only include ECAL and sensitive detector replacing last GEM in vacuum medium.
- Use ecal cluster energy and input momentum to get energy resolution for shower only and pre-shower + shower combination
- Previous simulation included target geometry, last 2 GEMs, and ECAL in air medium
- Energy deposit in the scintillator material is sum of ionization + non-ionization

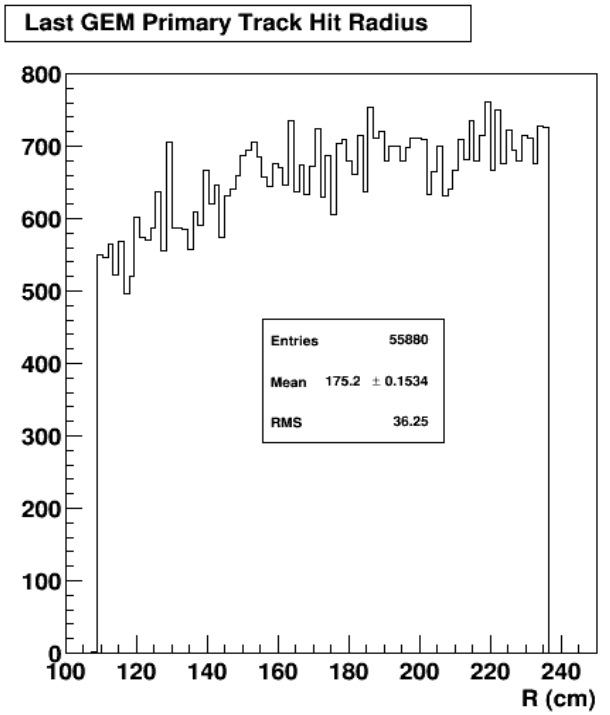
Input Flat Distribution at Last GEM



Input Momentum

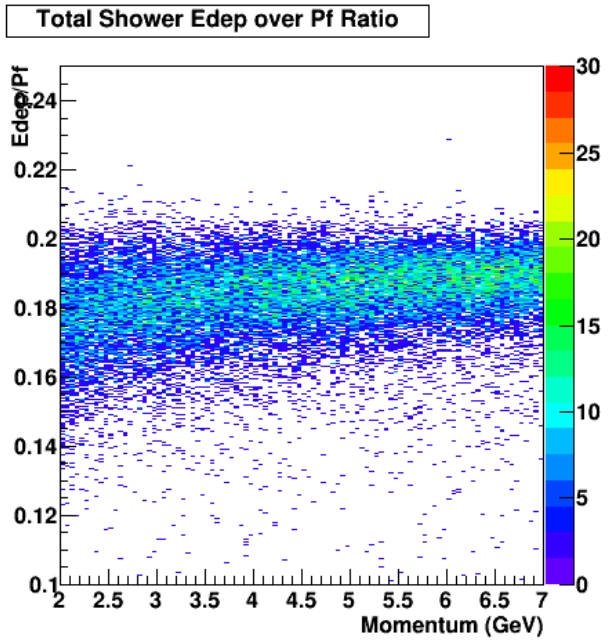


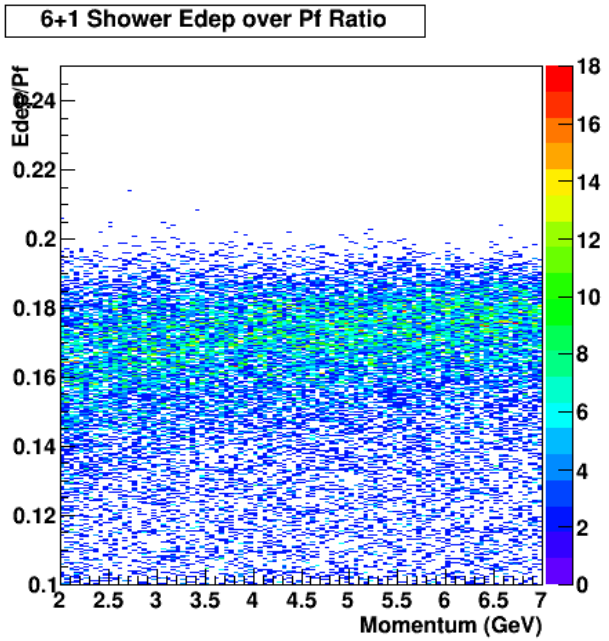
Input Angle

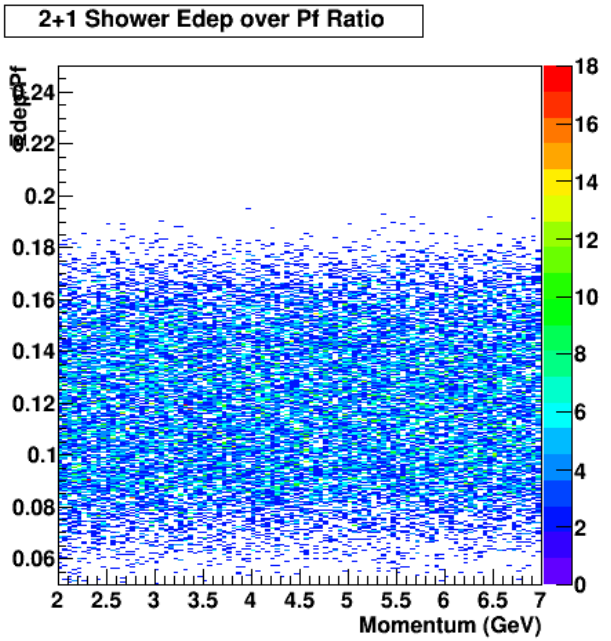


Input Radius

edep over P_f Ratio in Shower

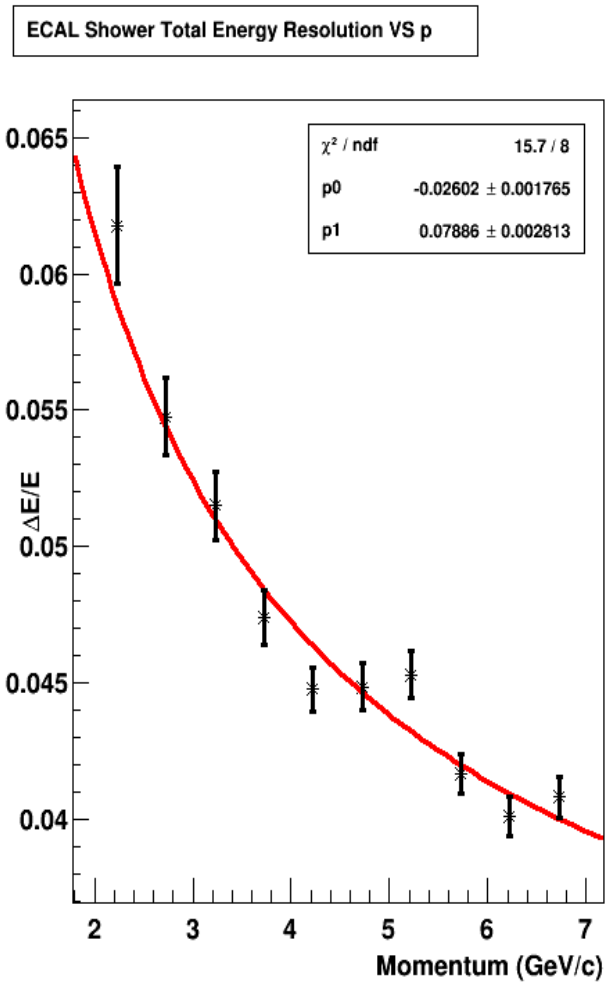


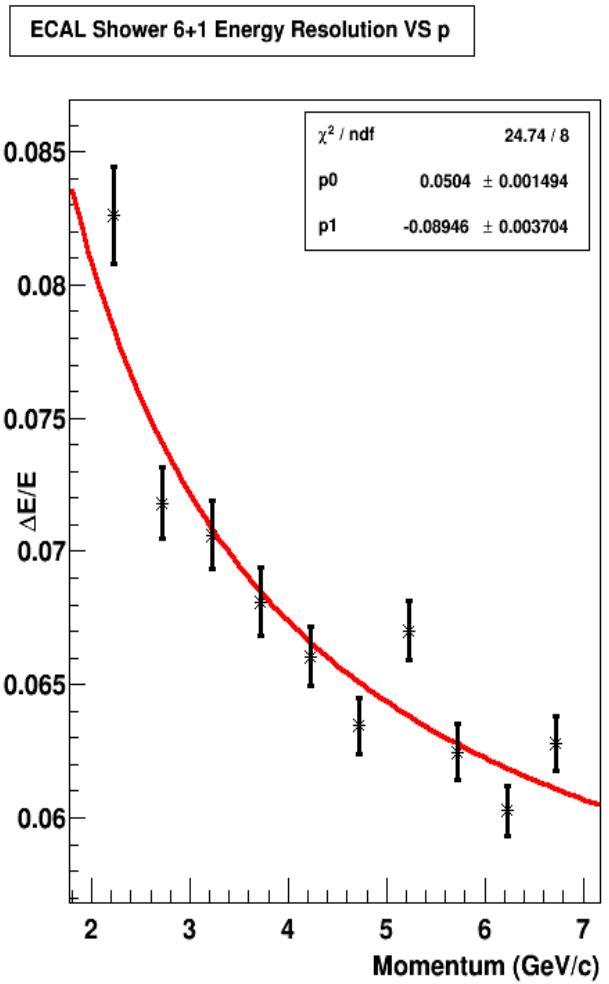


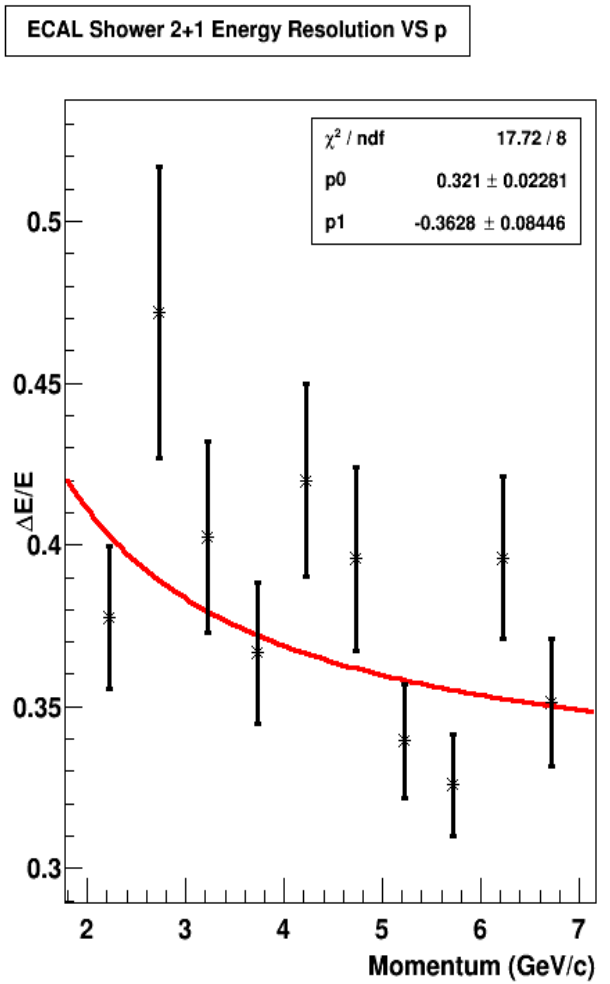


Pre-Shower lead and scintillator included in the simulation

Shower Energy Resolution



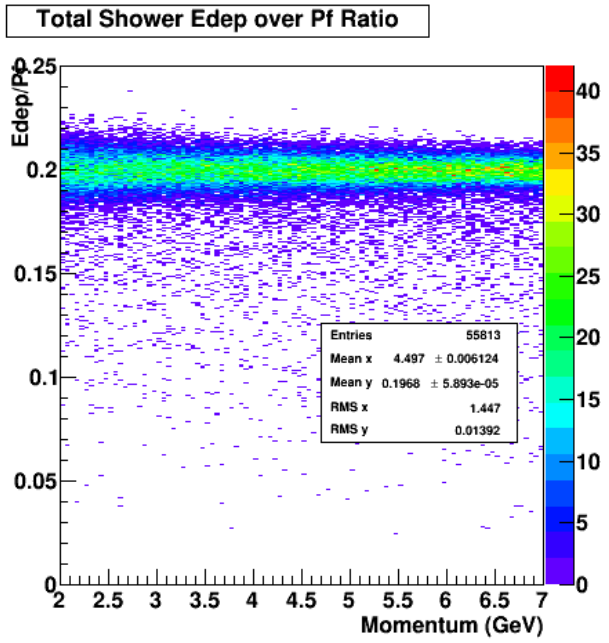


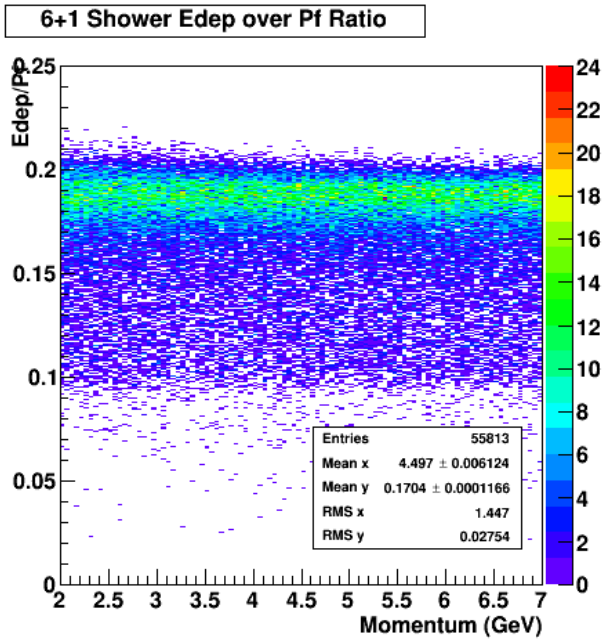


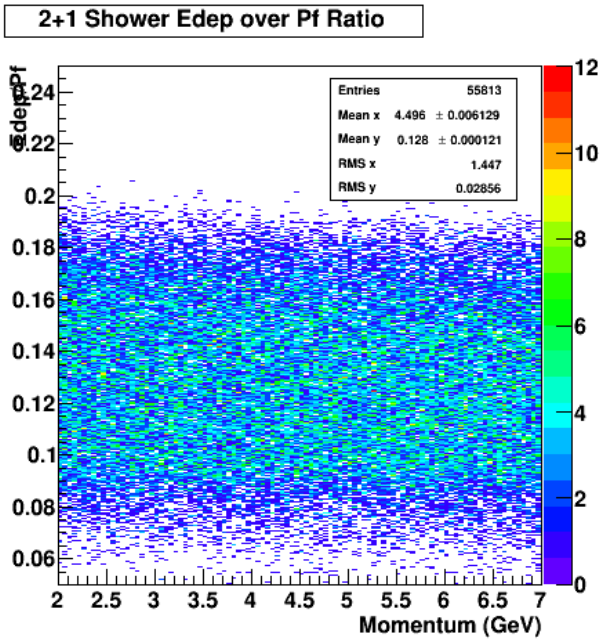
Based on total energy deposit in the Ecal

Pre-Shower lead and scintillator included in the simulation

edep over P_f Ratio in Shower

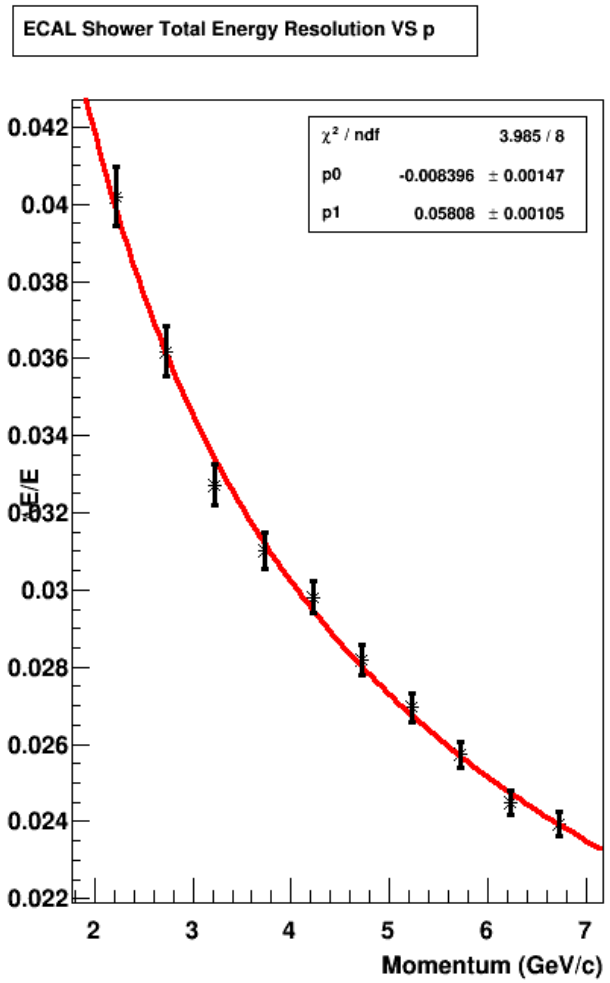


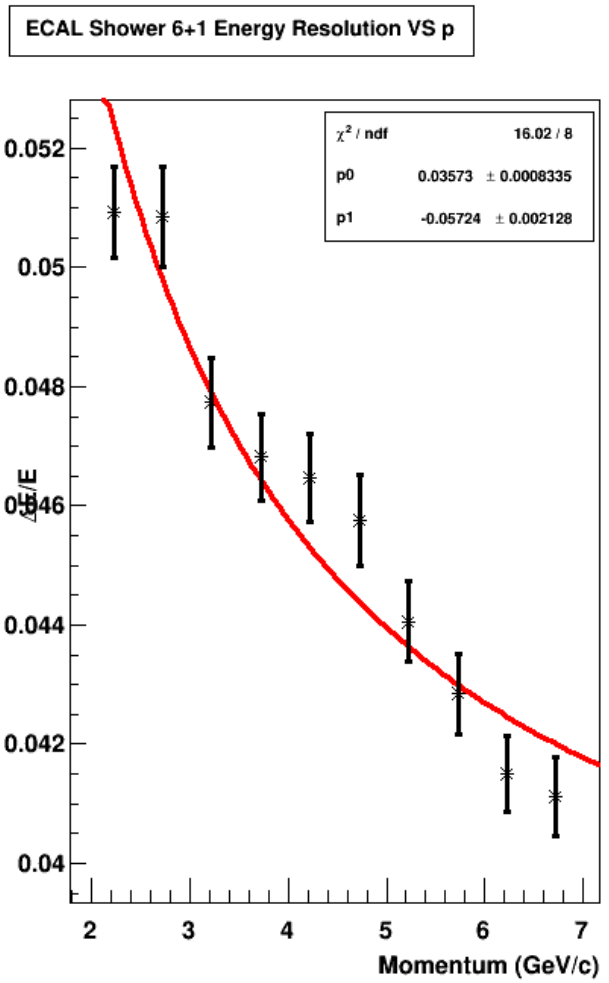


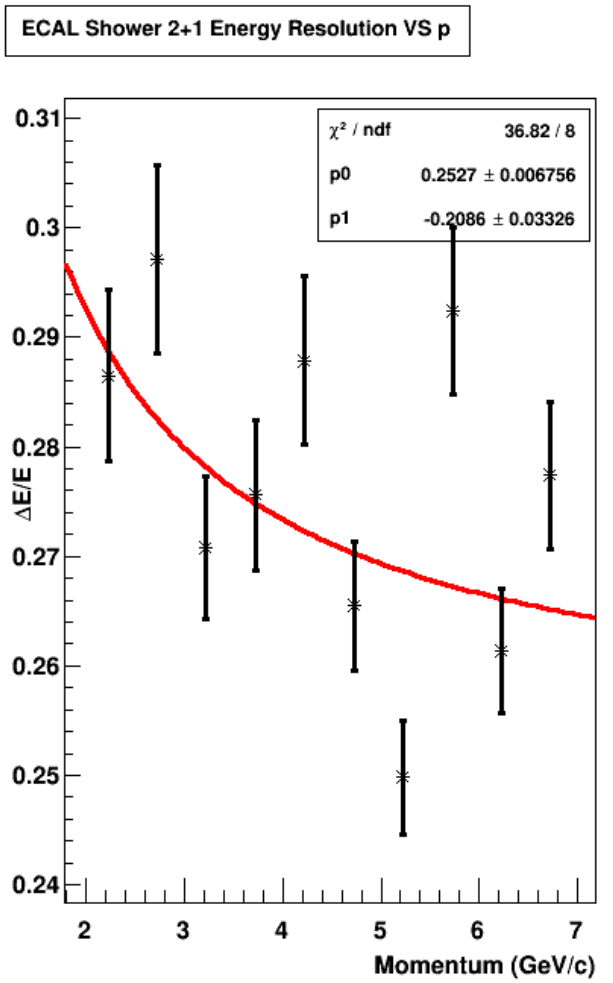


Pre-Shower lead and scintillator not included in the simulation

Pre Shower + Shower Energy Resolution





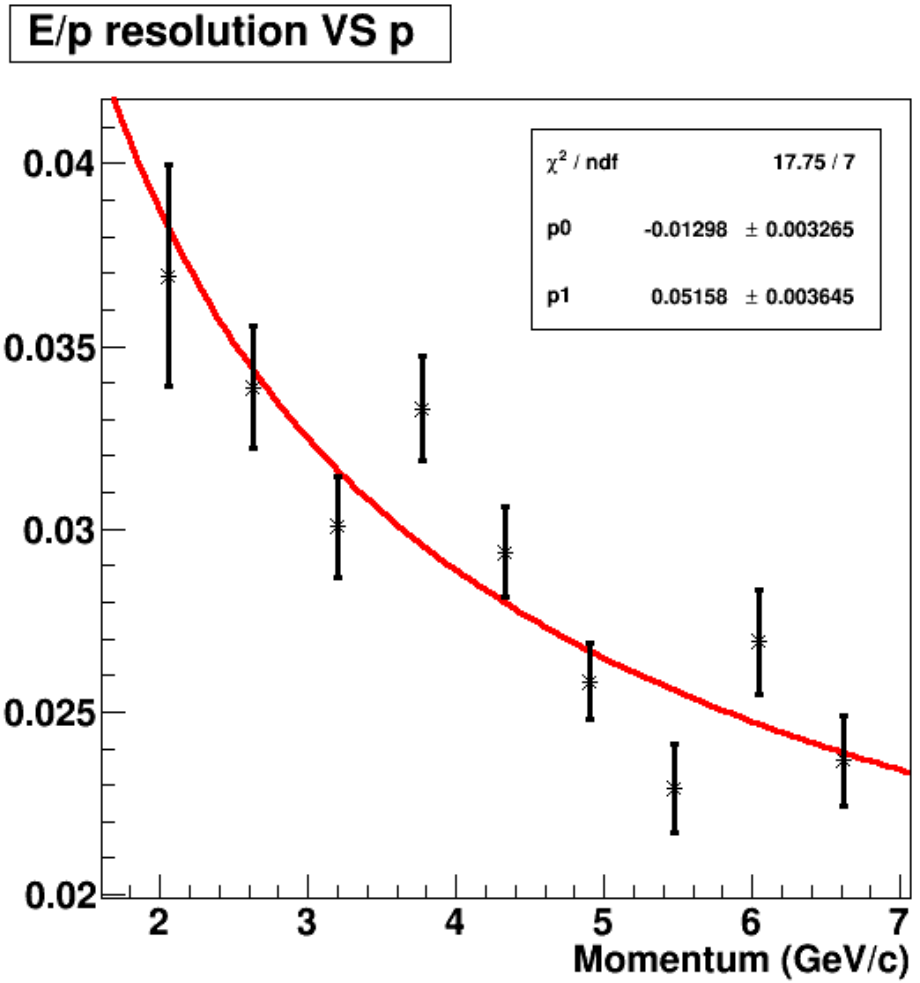


Using total energy deposit in the pre-shower and shower

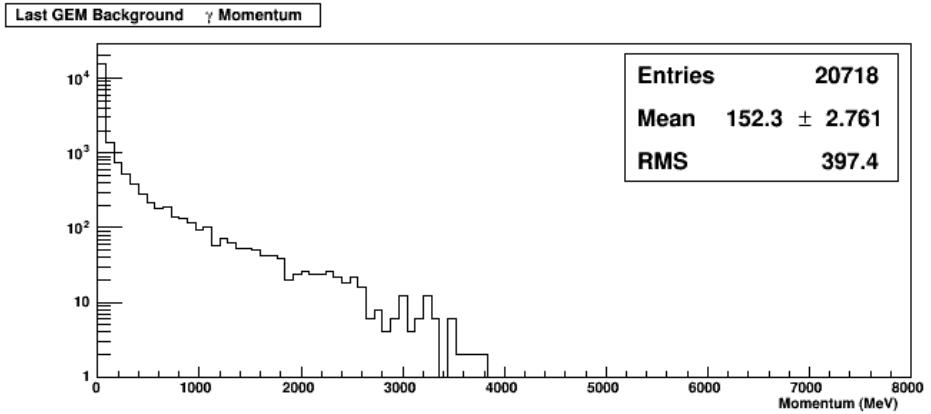
Pre-Shower lead and scintillator not included in the simulation

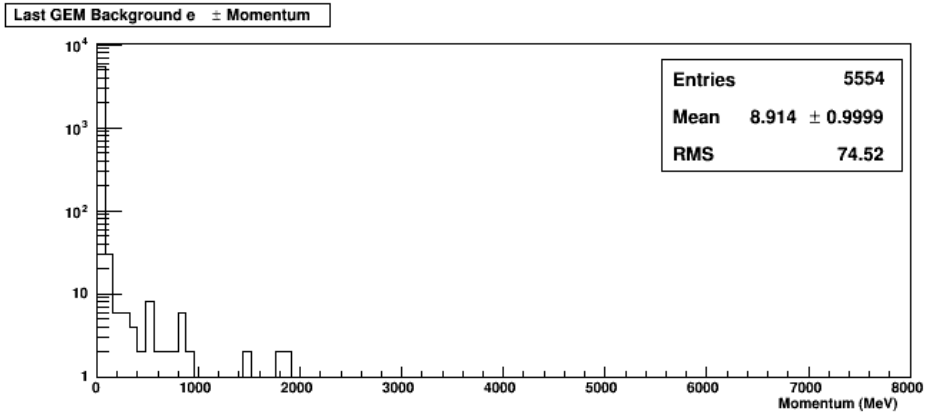
Jin's Energy Resolution (with No Phot. Elec.)

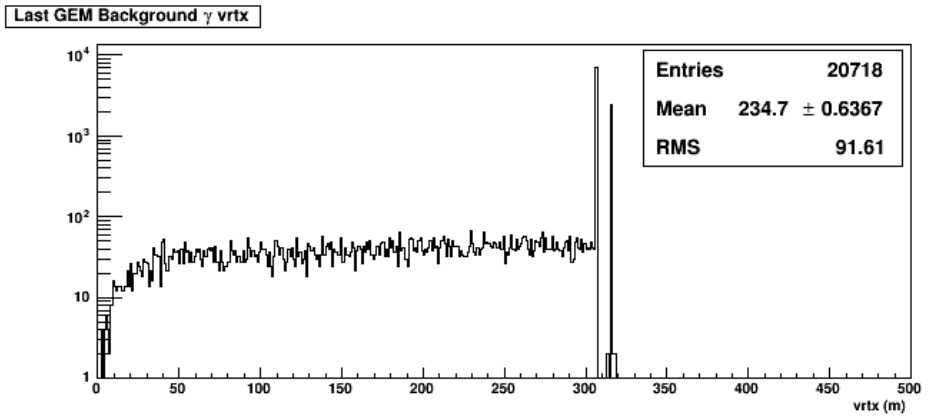
- Jin's estimation was based on ecal (ps+sh) energy deposition
  - No Photo-Electron (PE) contributions

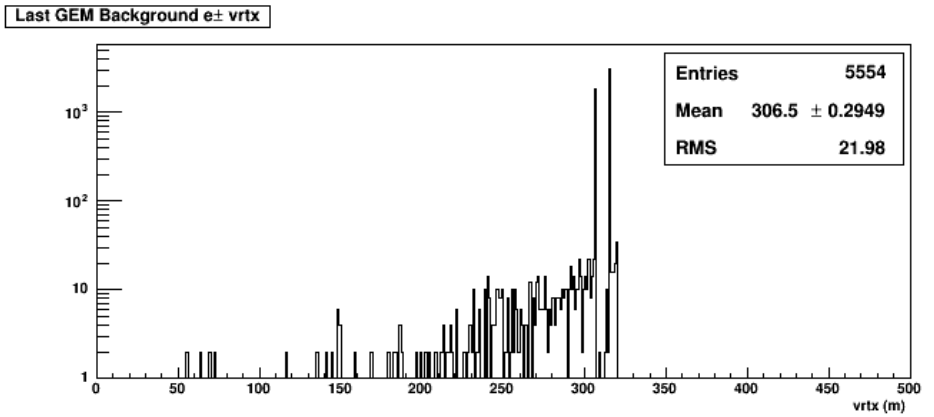


Background due to Radiative Effects



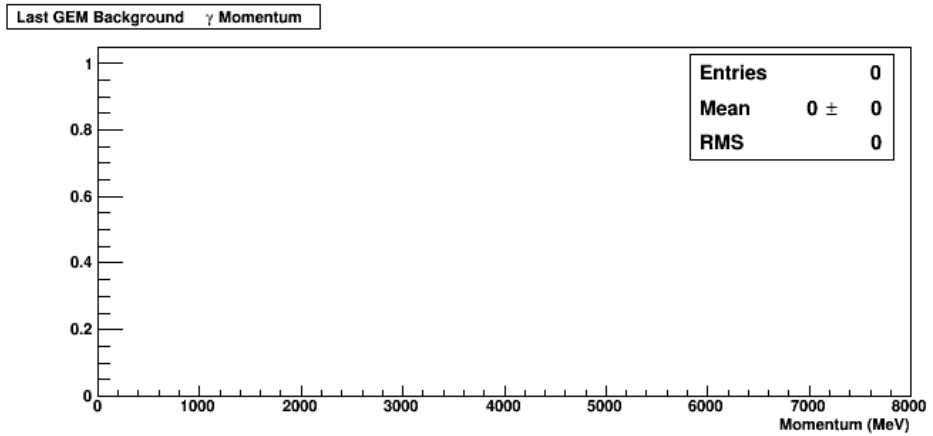


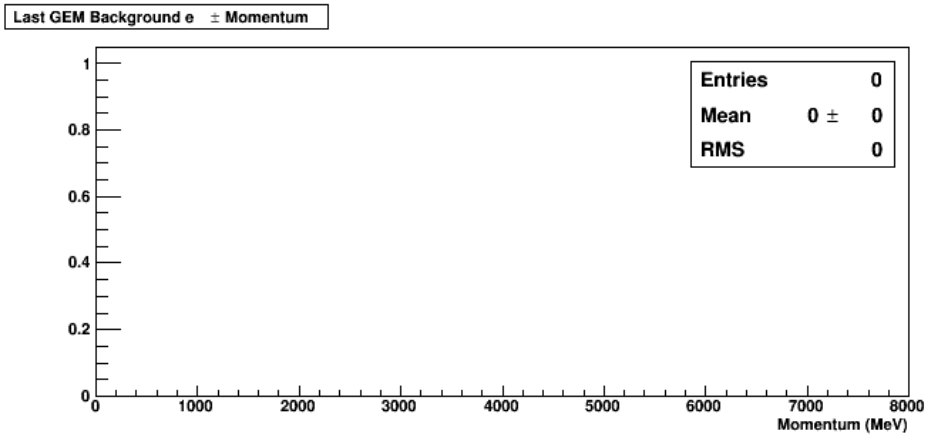


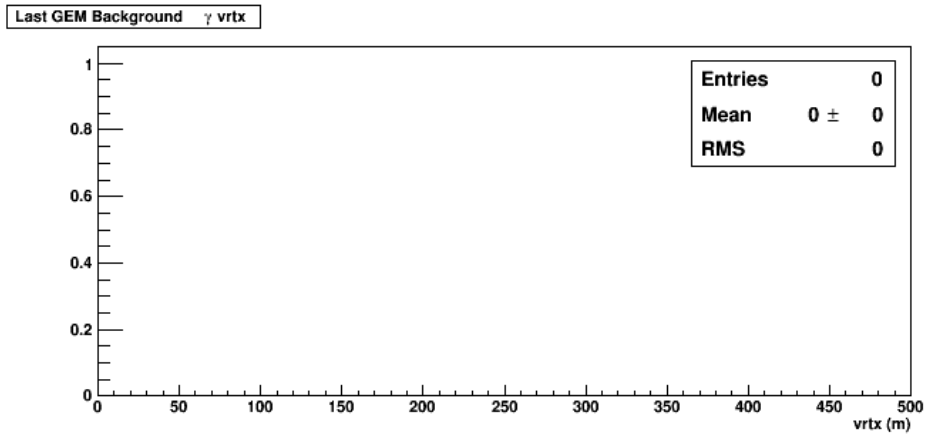


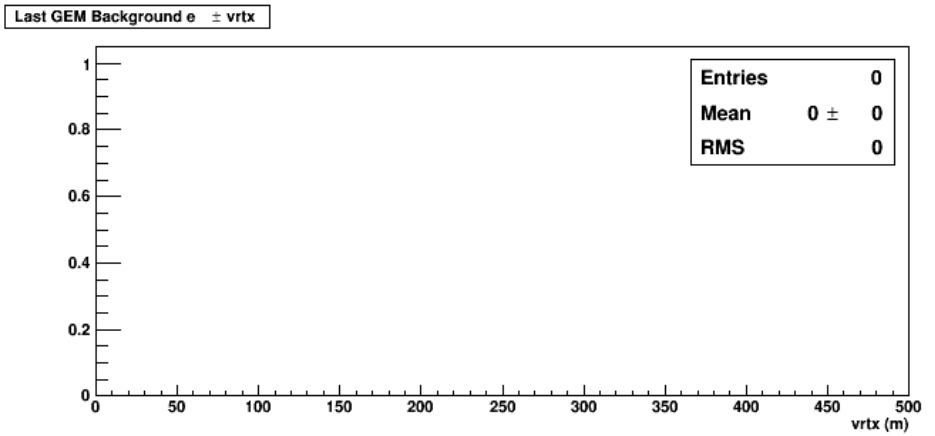
Simulation included empty target geometry, last 2 GEMs, and ECAL in air medium

Background due to Radiative Effects









Simulation only include ECAL and sensitive detector replacing last GEM in vacuum medium