ECAL Update

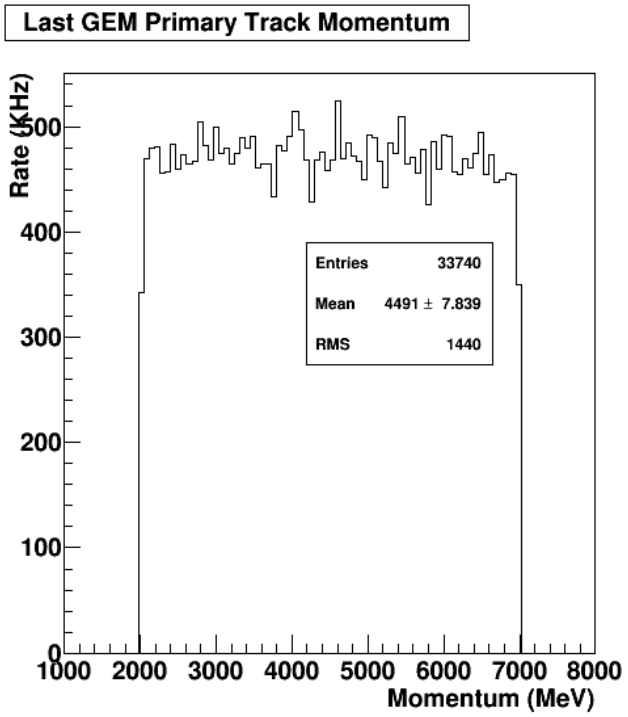
Energy Resolution : Shower

- Input flat distribution : electrons
- Use ecal cluster energy and input momentum to get
  - Energy Resolution

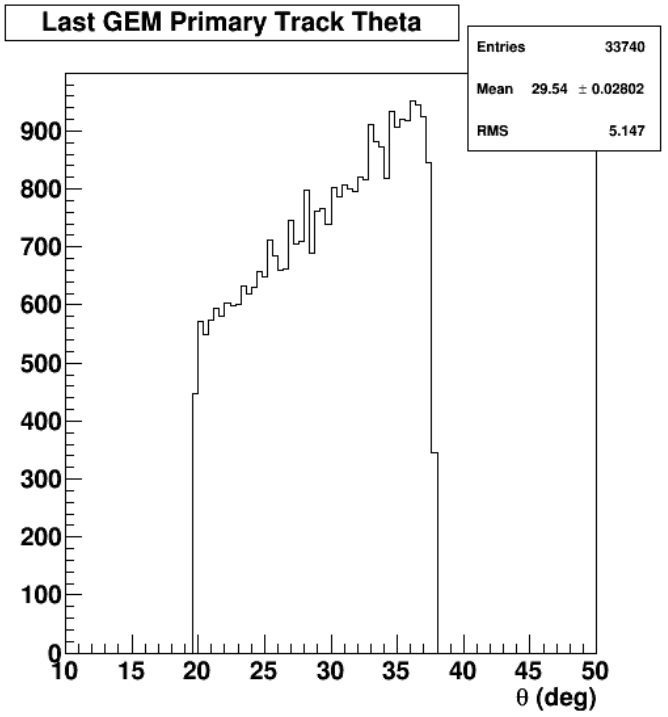
Steps to Obtain Energy Resolution

- Get Pre Shower (PS) and Shower Cluster (SC) energy deposit for each input event
  - For 6+1 and 2+1 clusters maximum edep cluster is selected for each event
- Get the RMS fluctuation of the $Edep_{ecal}/P_f$ ratio

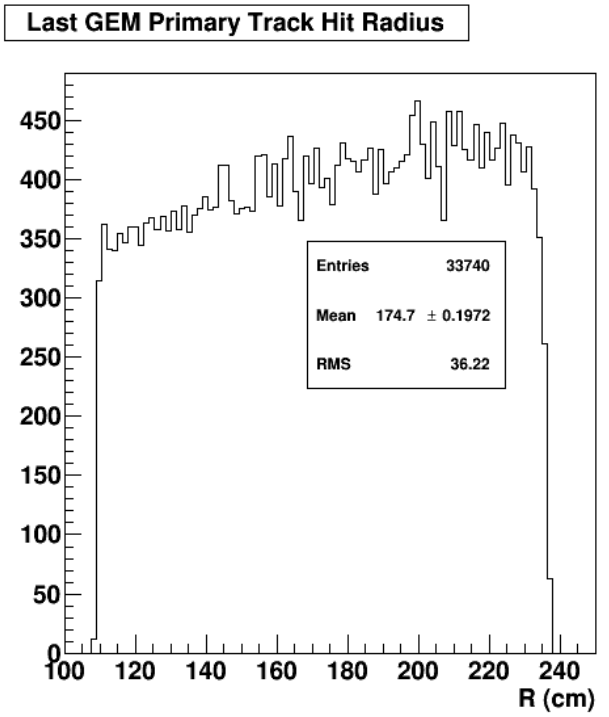
Input Flat Distribution at Last GEM



Input Momentum

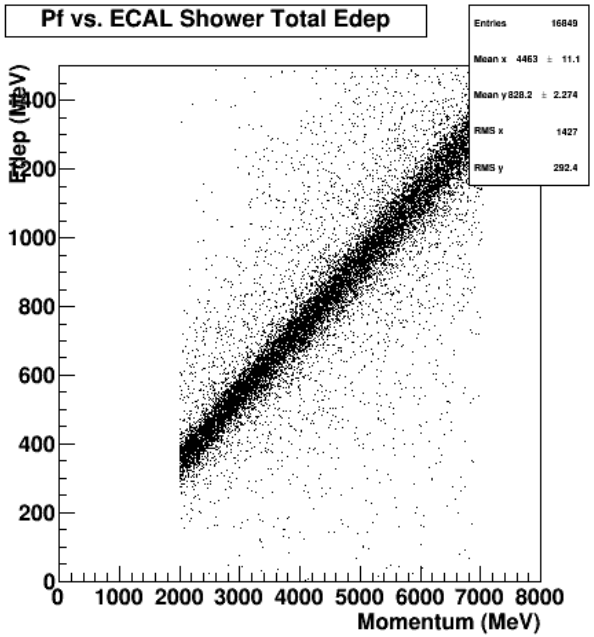


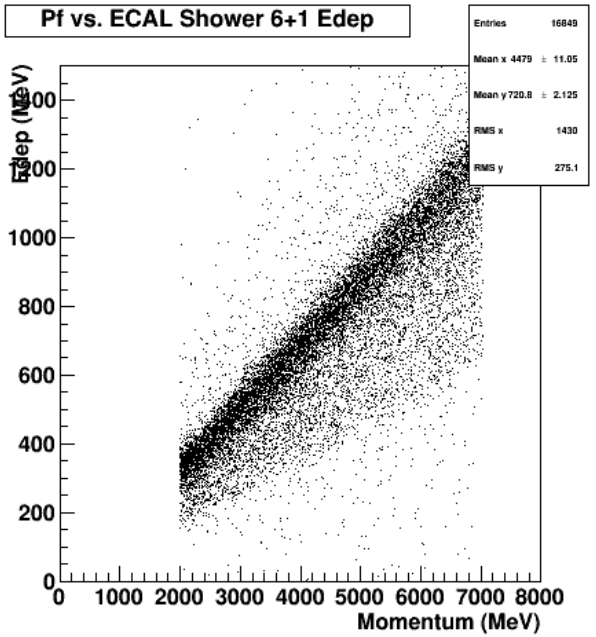
Input Angle

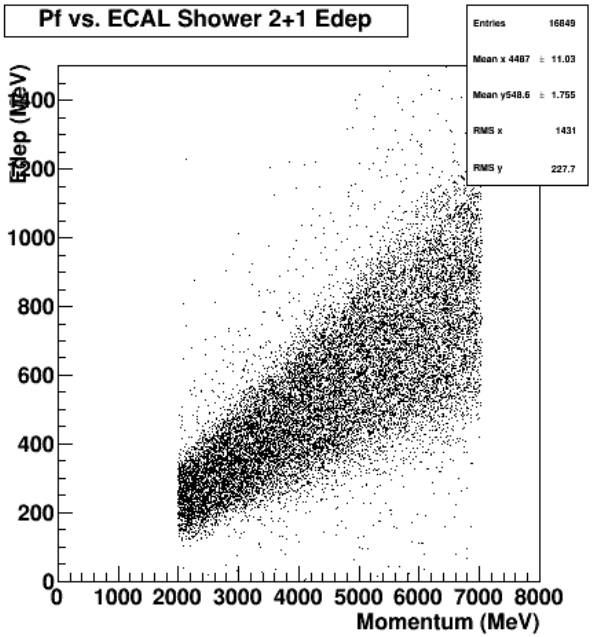


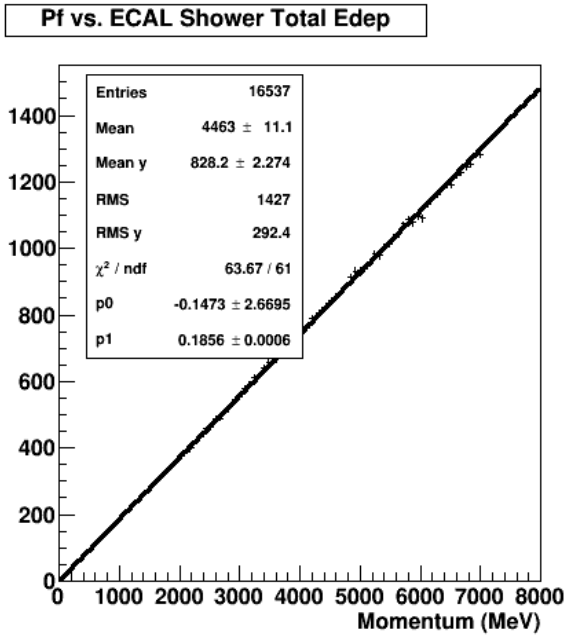
Input Radius

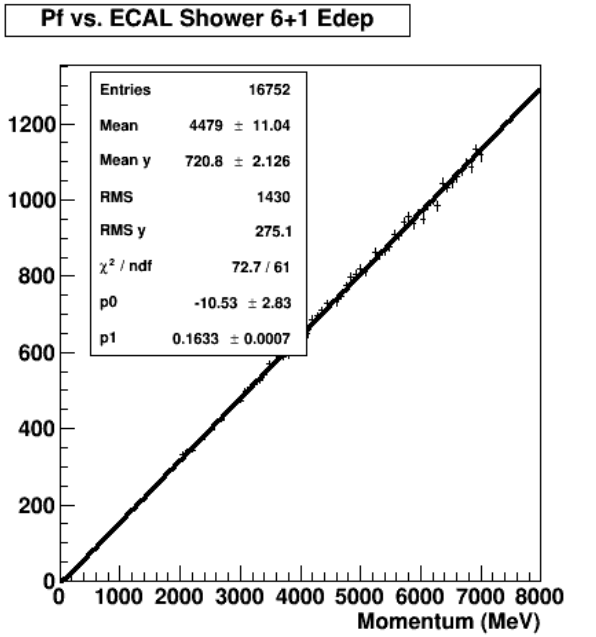
Edep in Shower Cluster

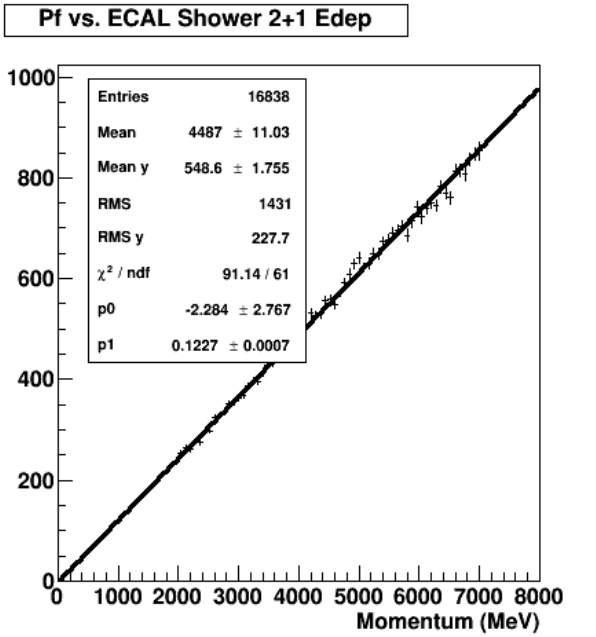




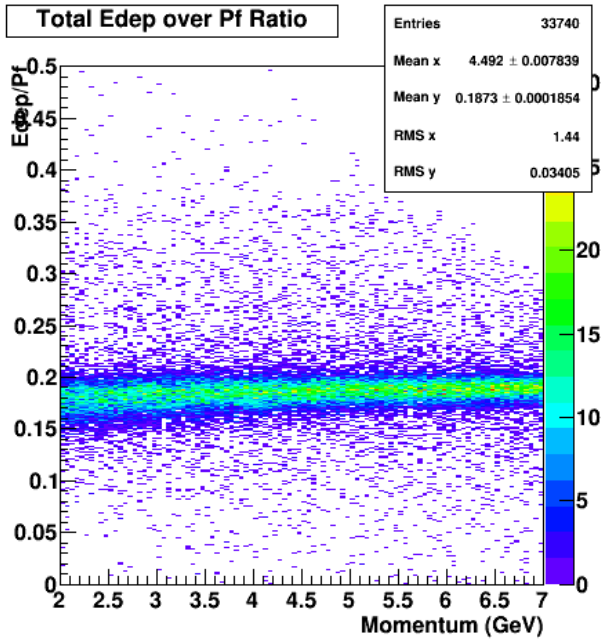


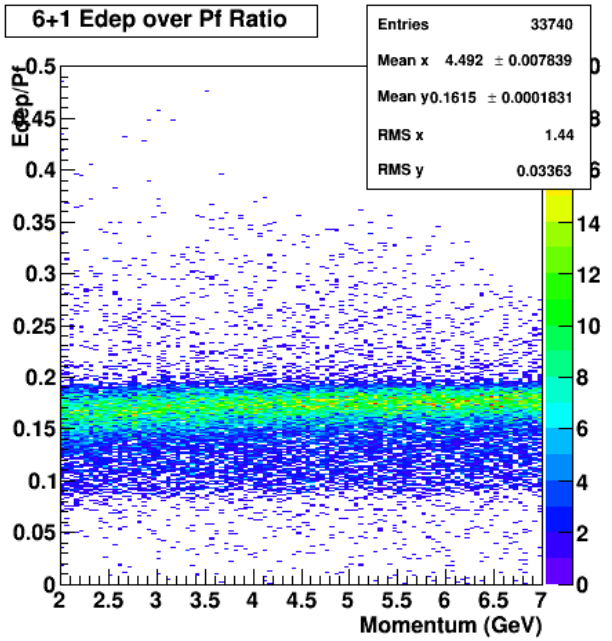


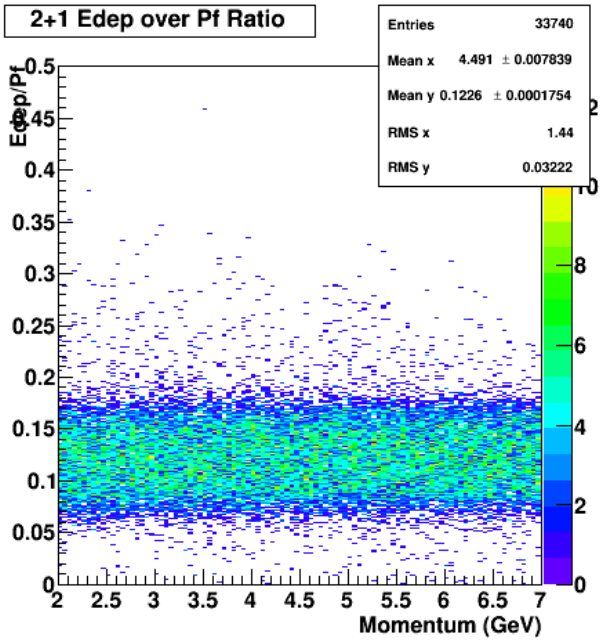




edep over P_f Ratio in Shower

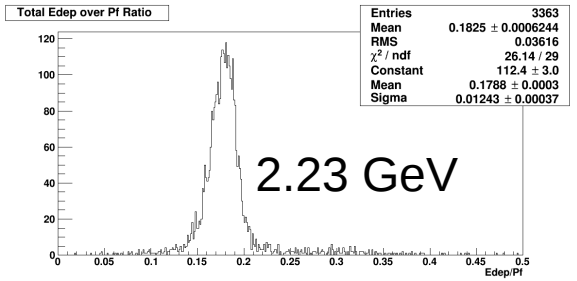


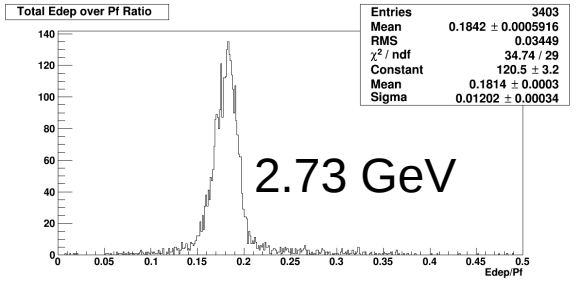


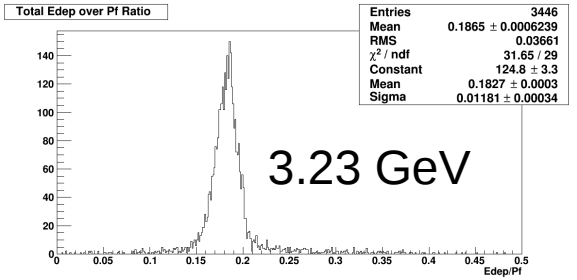


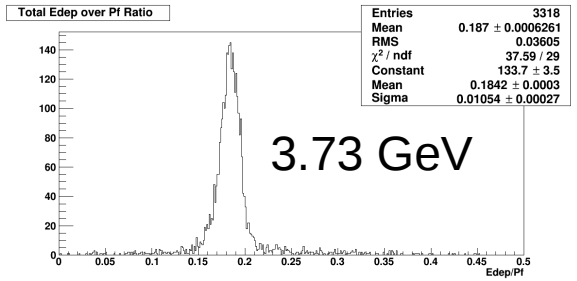
Momentum (edep) over P_f Ratio

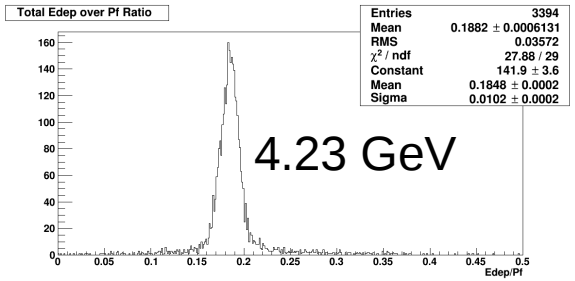
- Get the spread in edep over Pf ratio in incident energy bins
  - Energy resolution based on total energy deposit

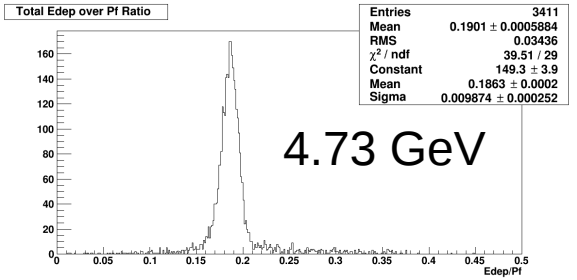


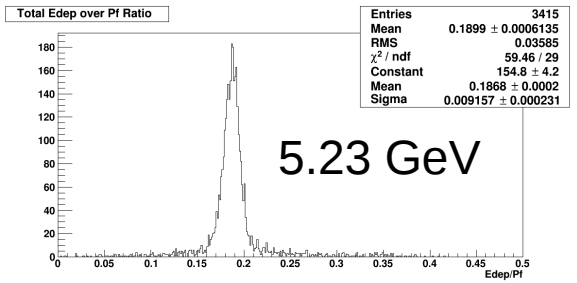


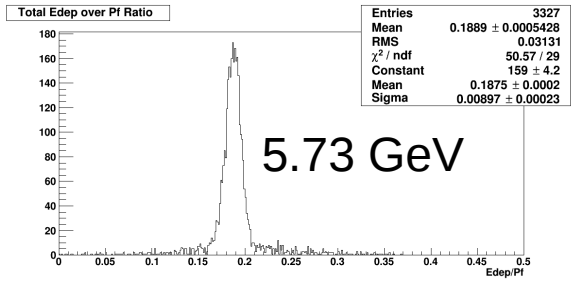


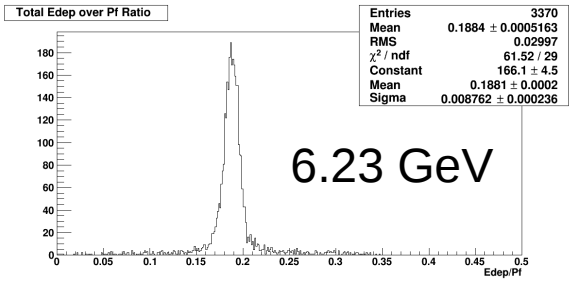




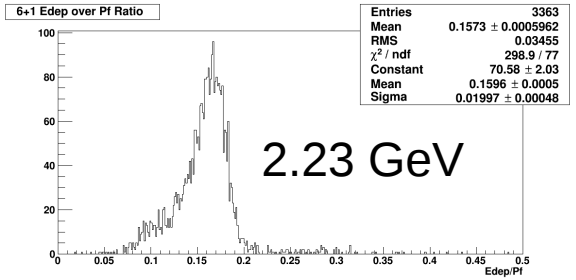


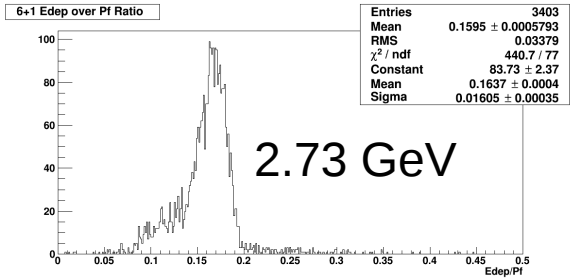


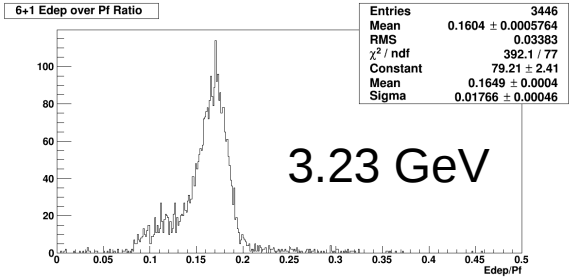


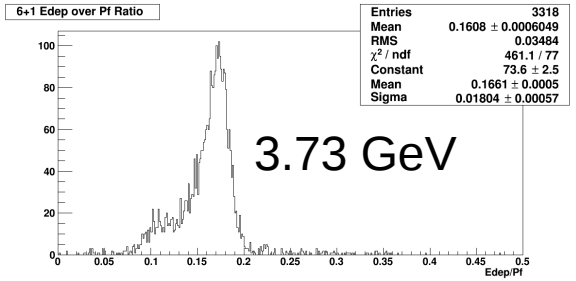


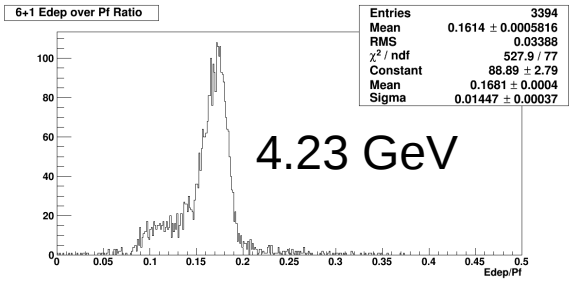
Momentum (edep) over P_f Ratio : 6+1

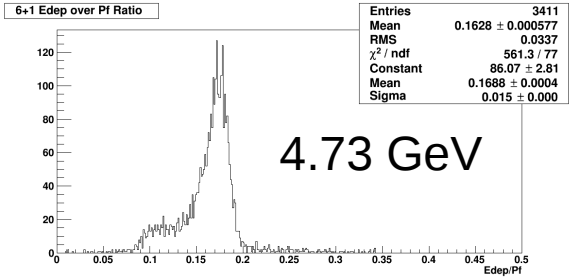


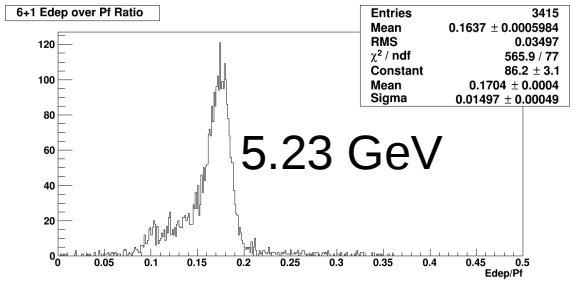


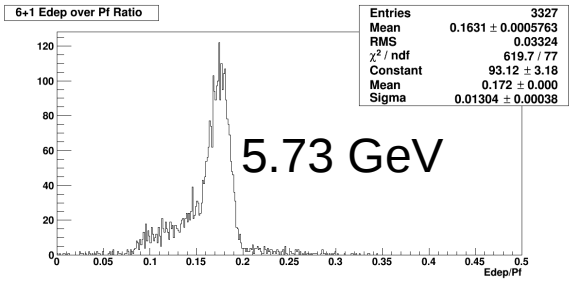


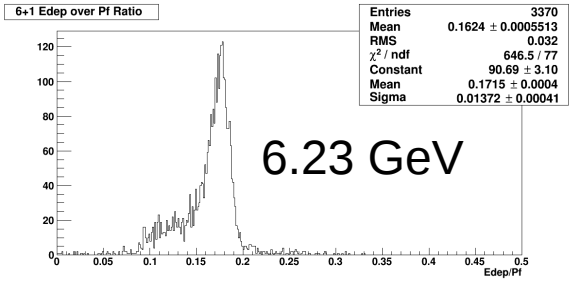




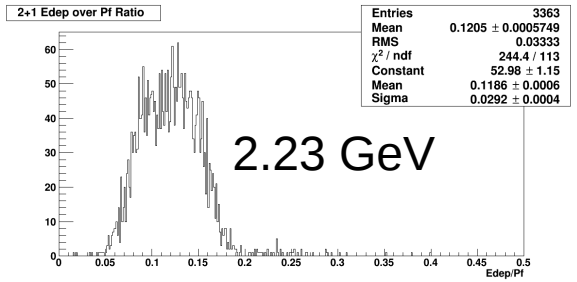


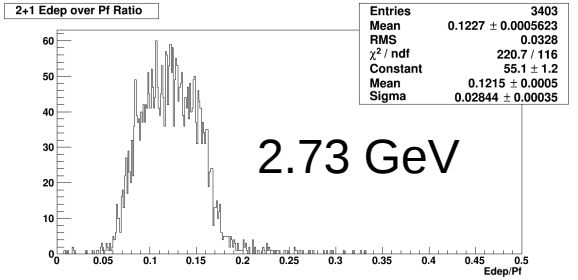


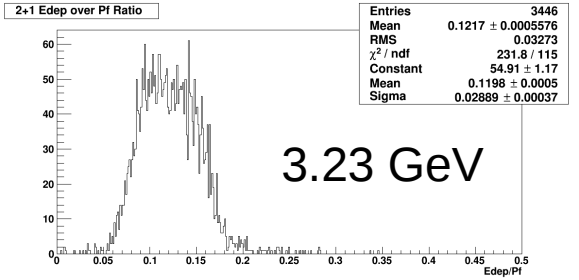


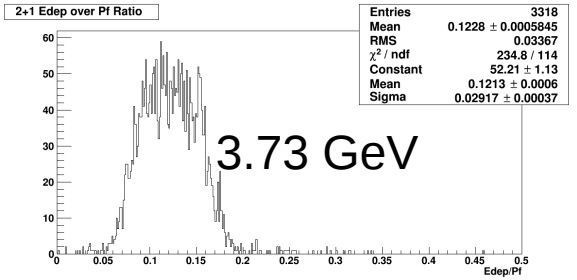


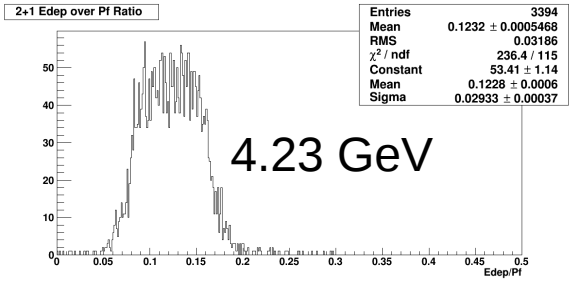
Momentum (edep) over Pf Ratio : 2+1

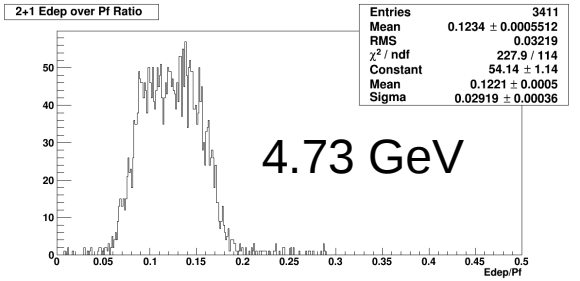


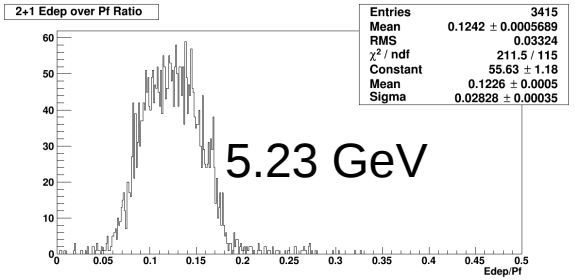


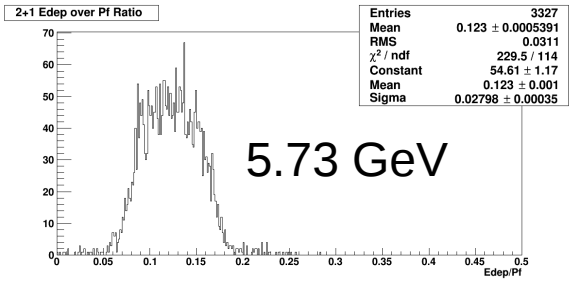


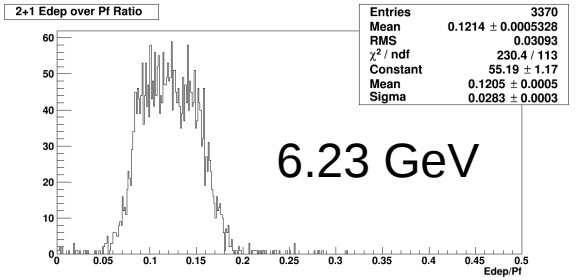




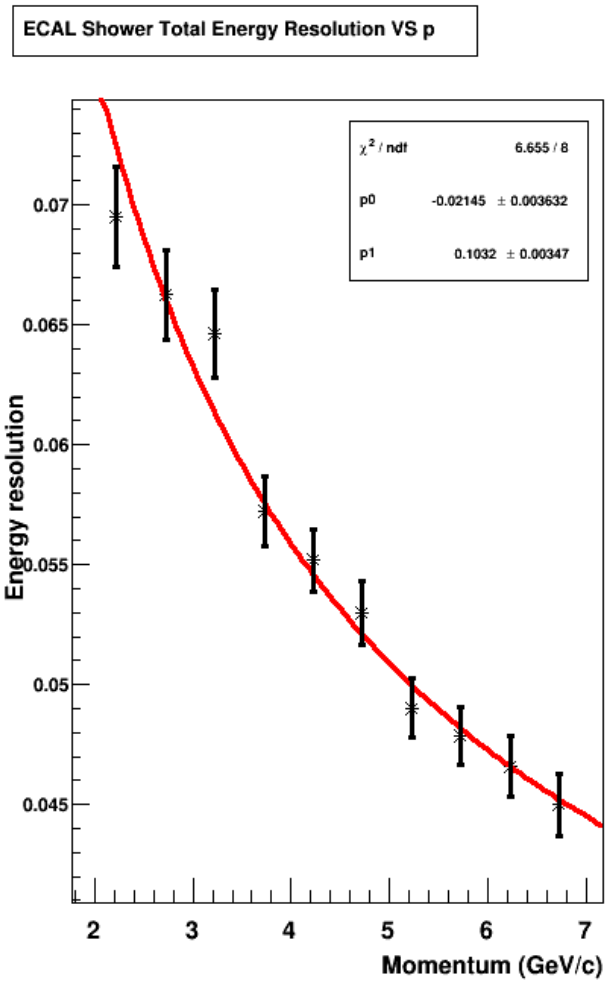


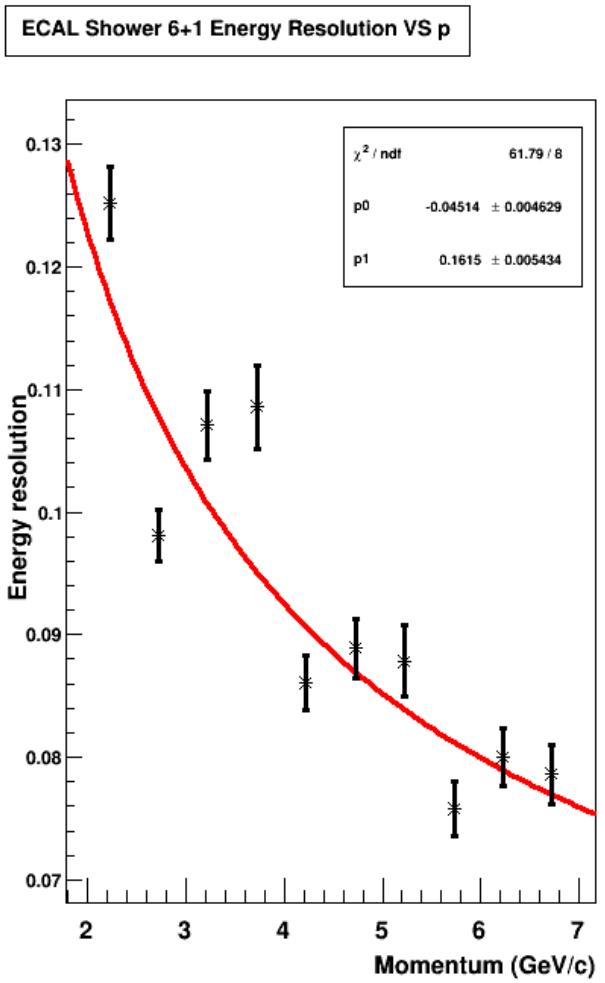


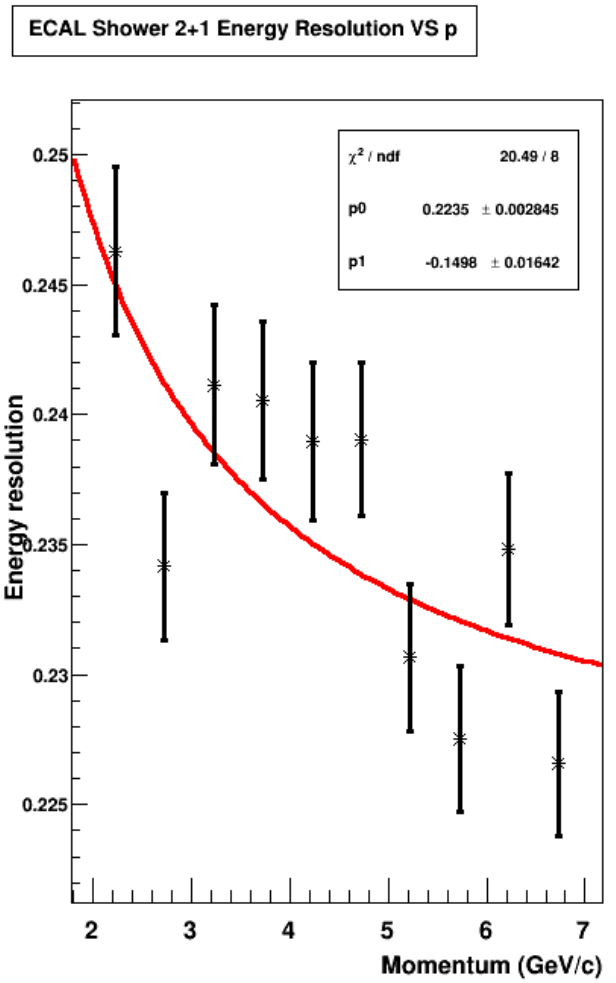




Shower Energy Resolution

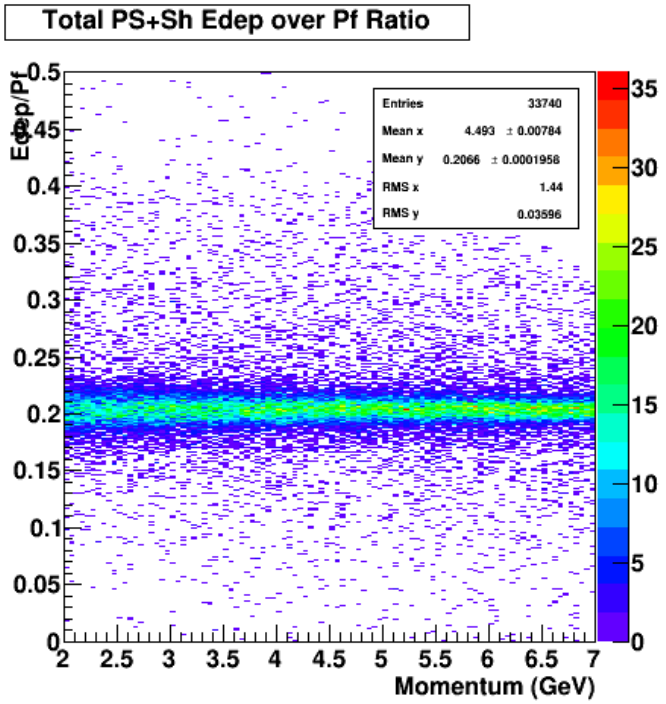


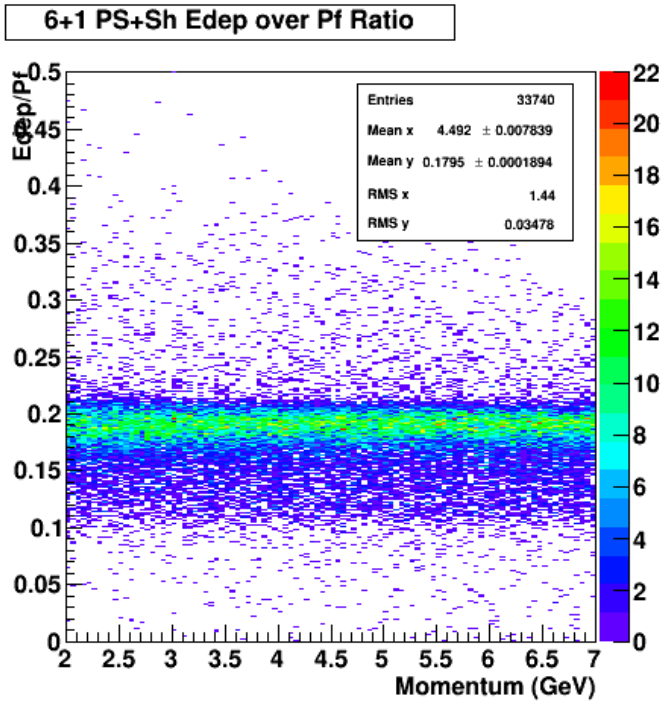


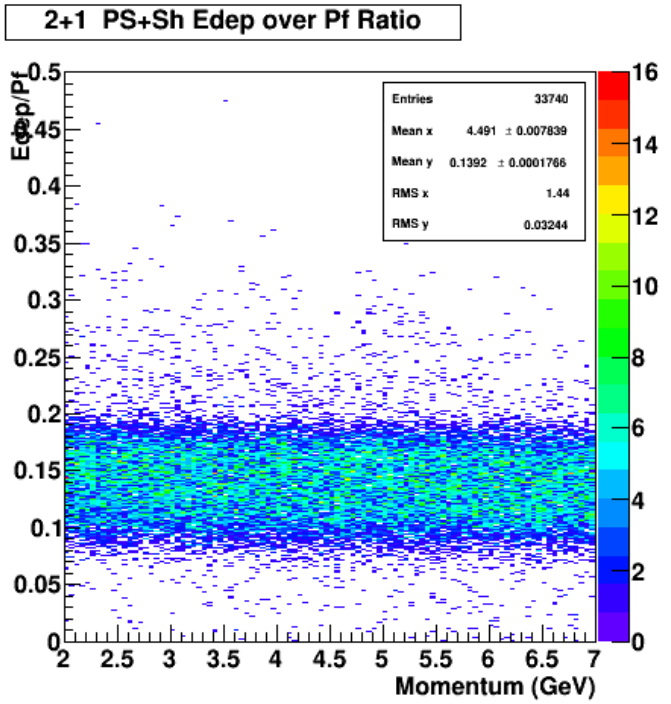


Based on total energy deposit in the Ecal

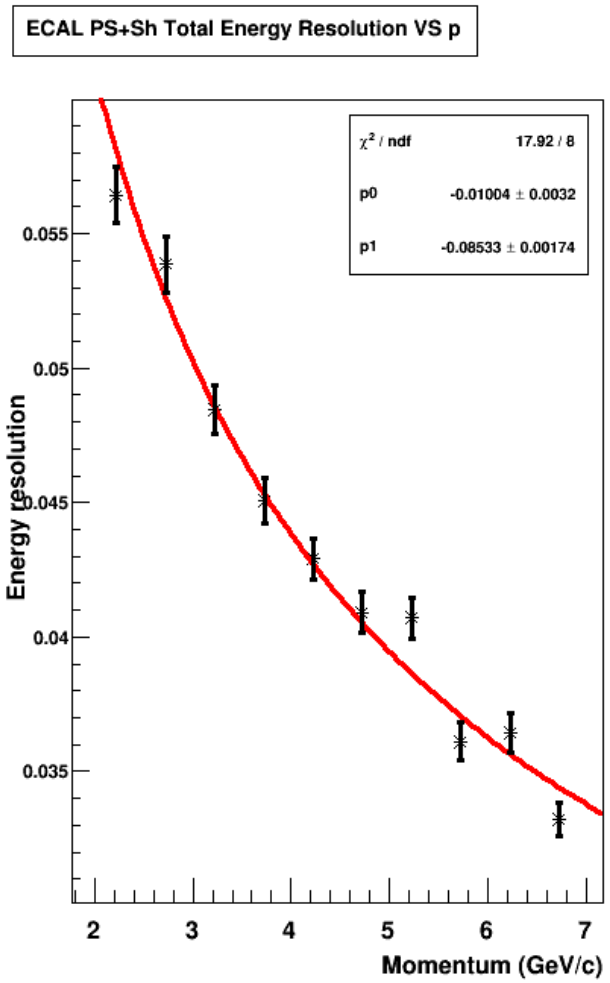
edep over P_f Ratio in PS+SH

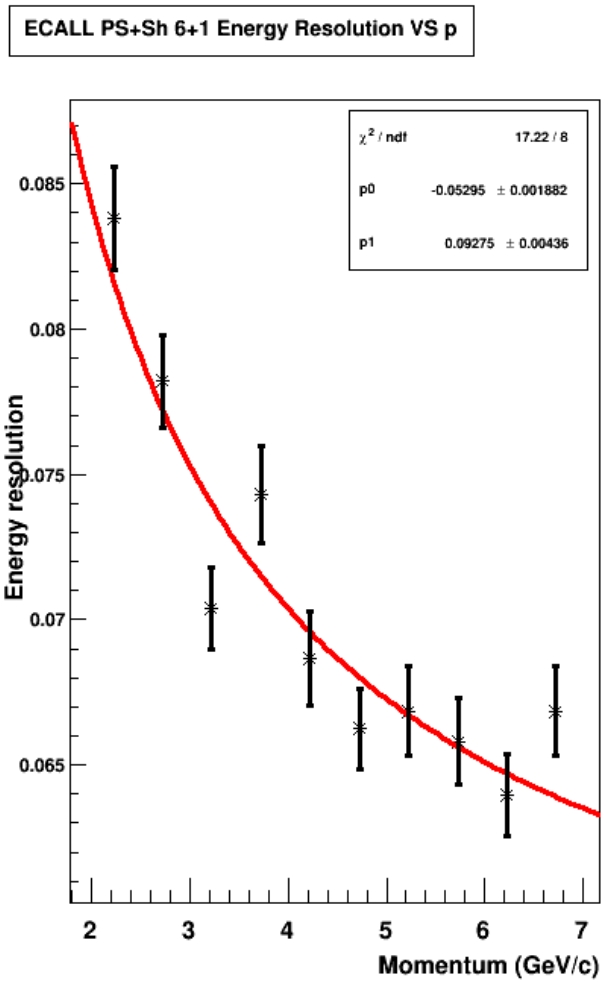


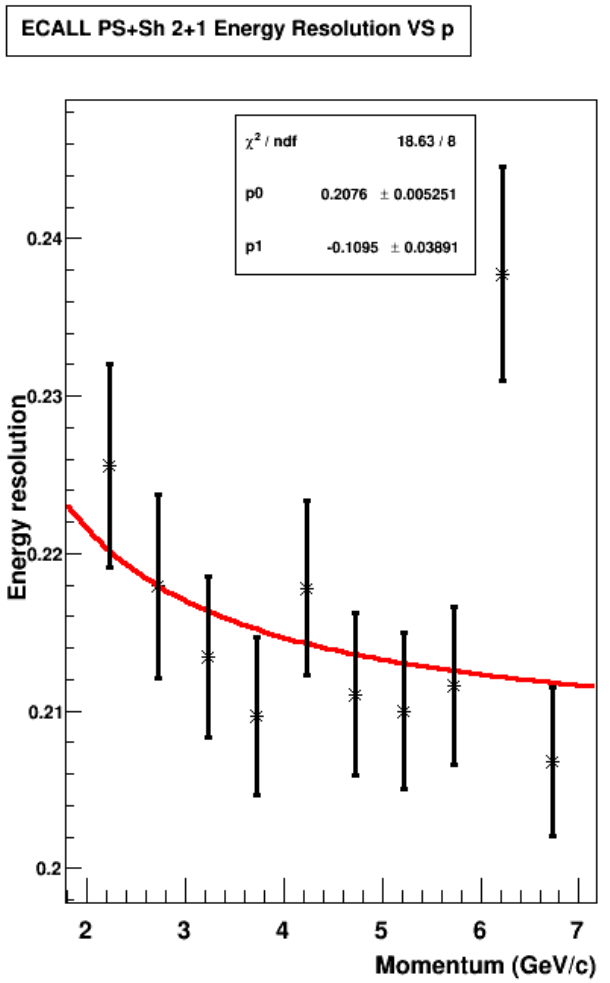




Pre Shower + Shower Energy Resolution





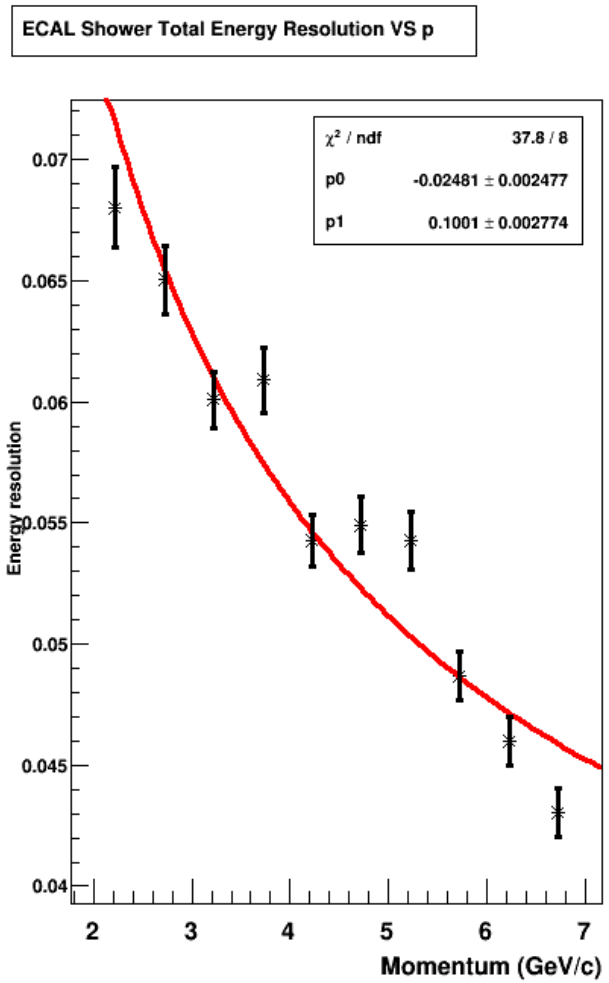


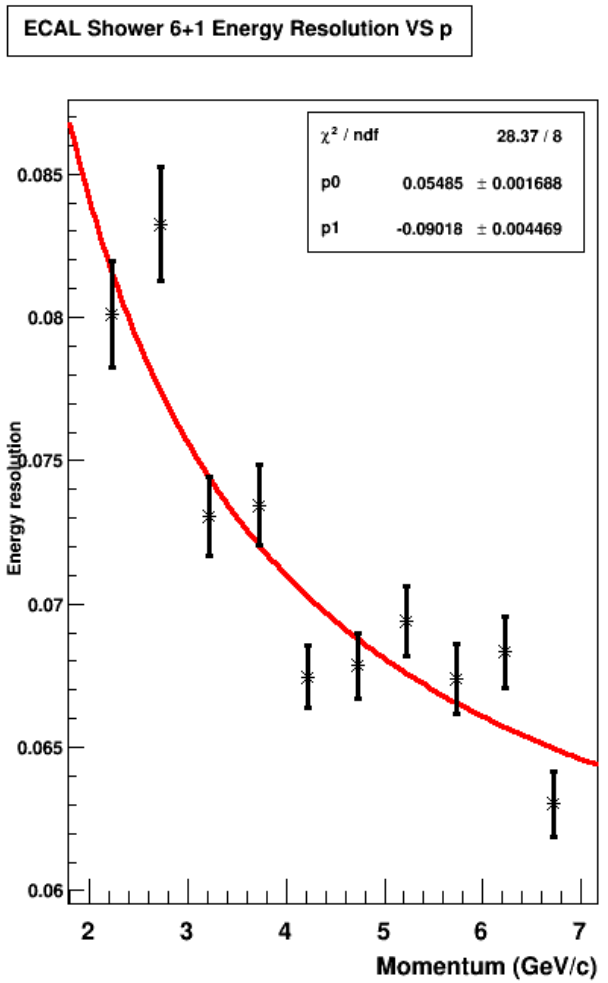
Using total energy deposit in the pre-shower and shower

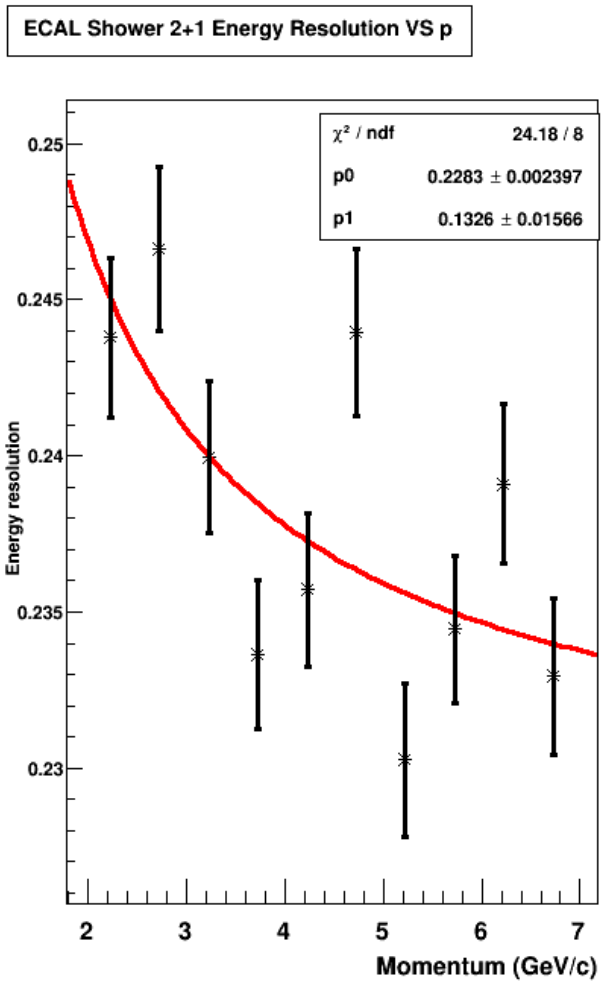
Energy Resolution with Ion+Non-Ion Edep

- The energy resolution is generated using ionization energy deposit in the scintillator material
- Next set of plots are generated using ionization + non-ionization energy deposit in the scintillator material

Shower Energy Resolution

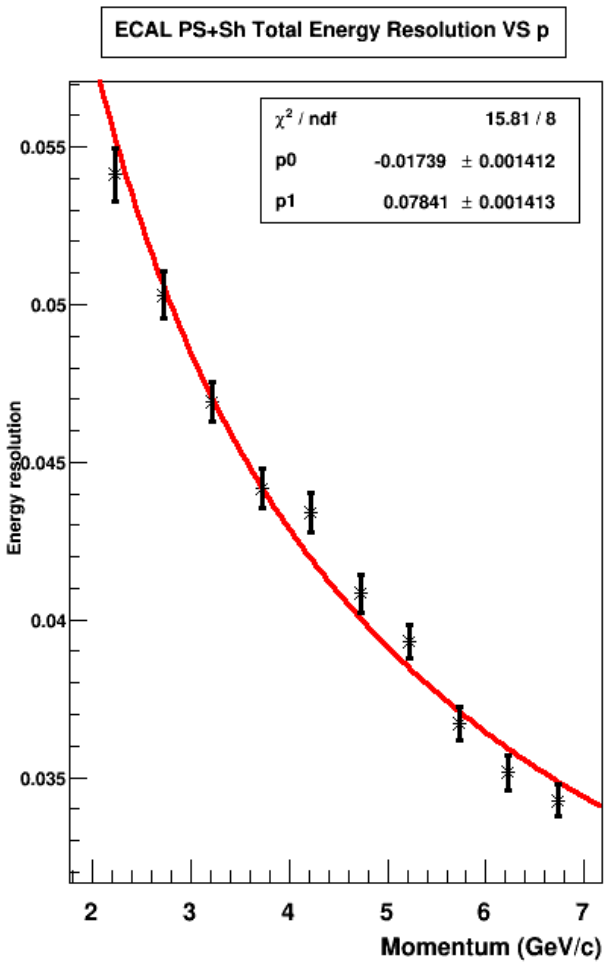


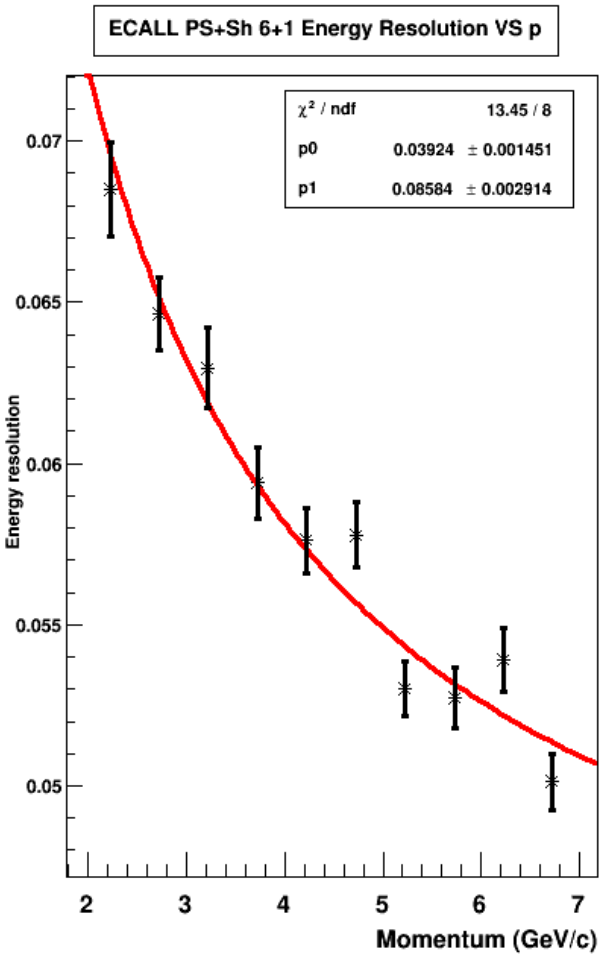


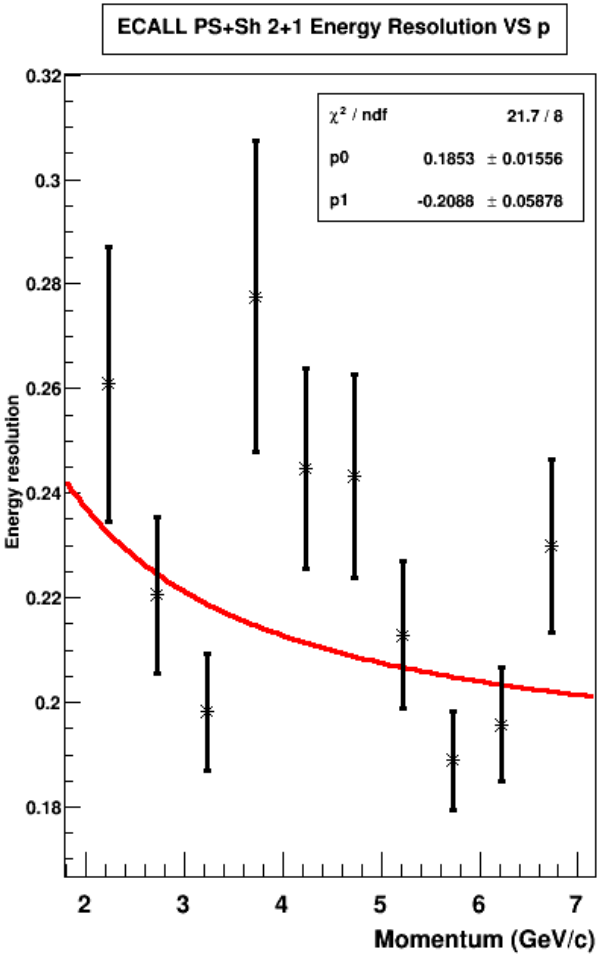


Using total energy deposit in the shower

Pre Shower + Shower Energy Resolution







Using total energy deposit in the pre-shower and shower

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

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