Combined Chicane and Proton Absorber

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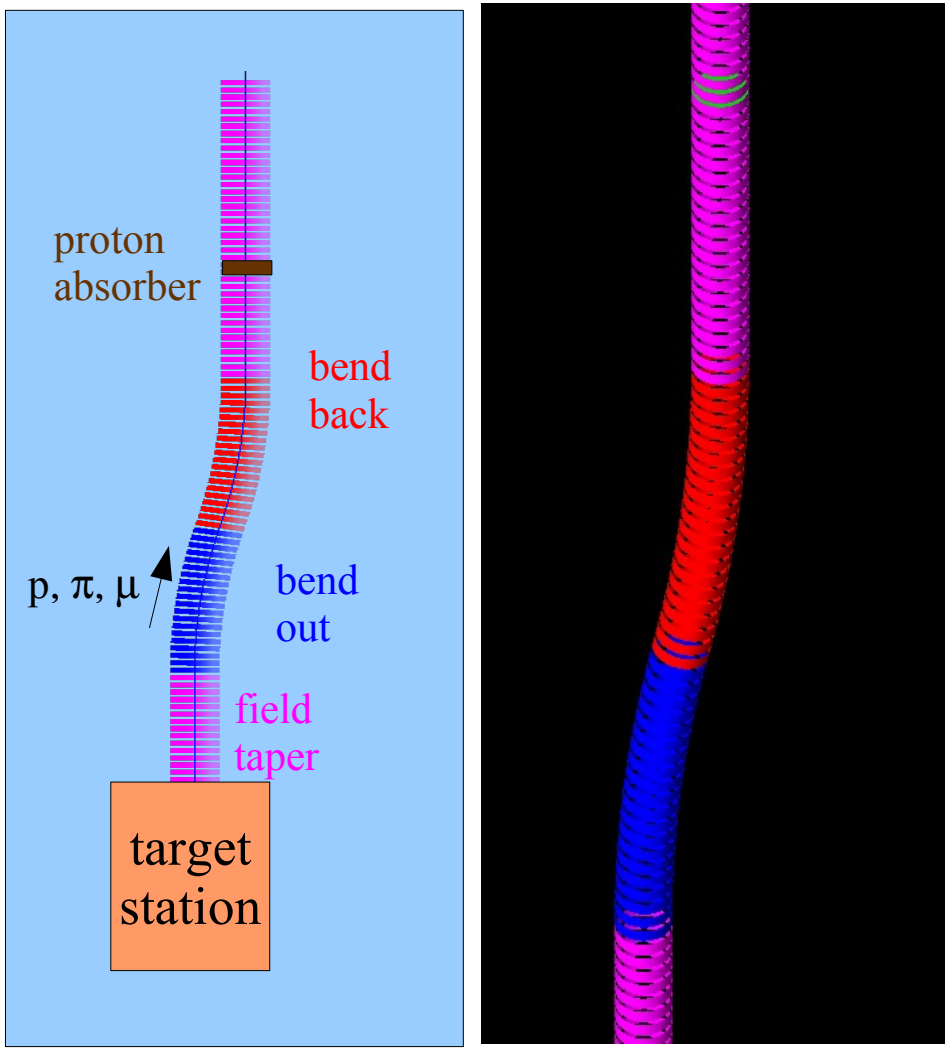
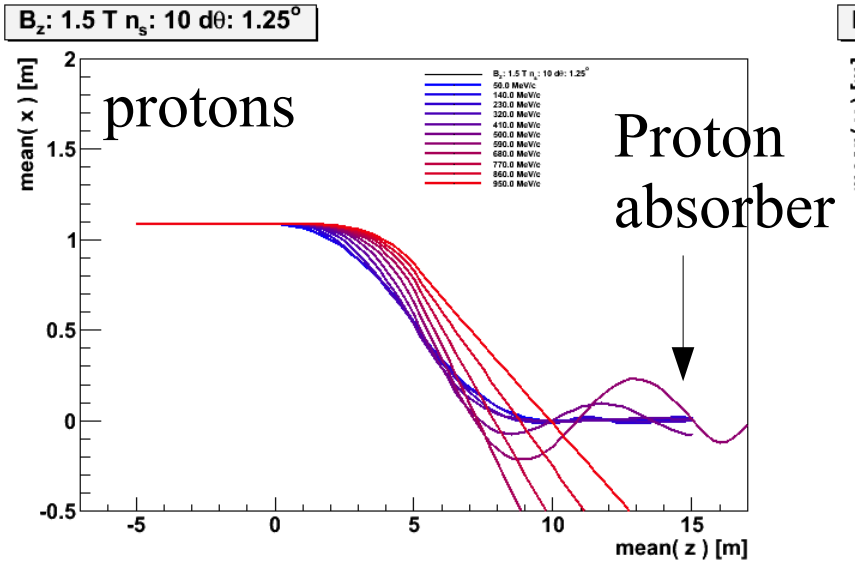
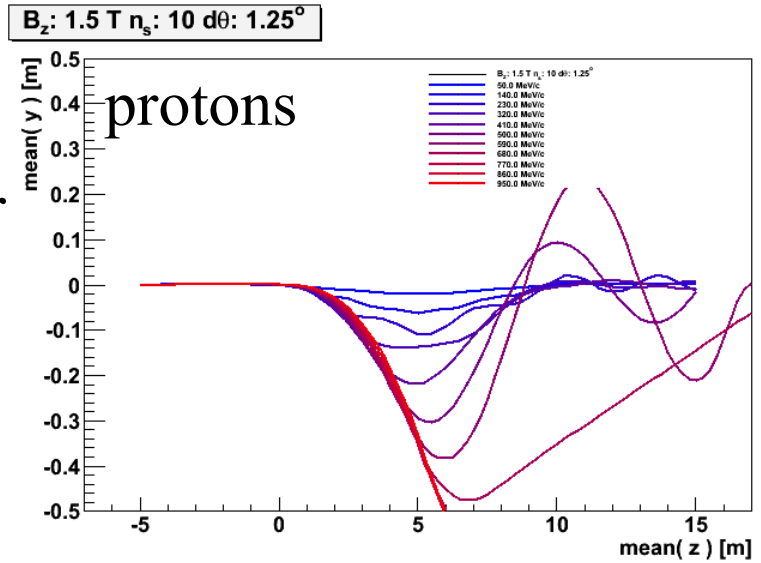
Two Things

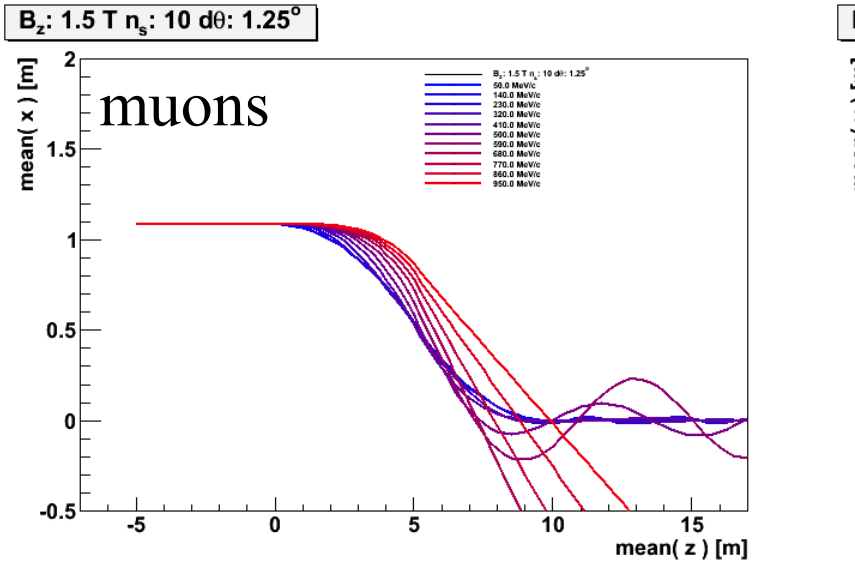
- Add proton absorber
  - Try 10 cm Carbon plug
- Power deposition on hardware

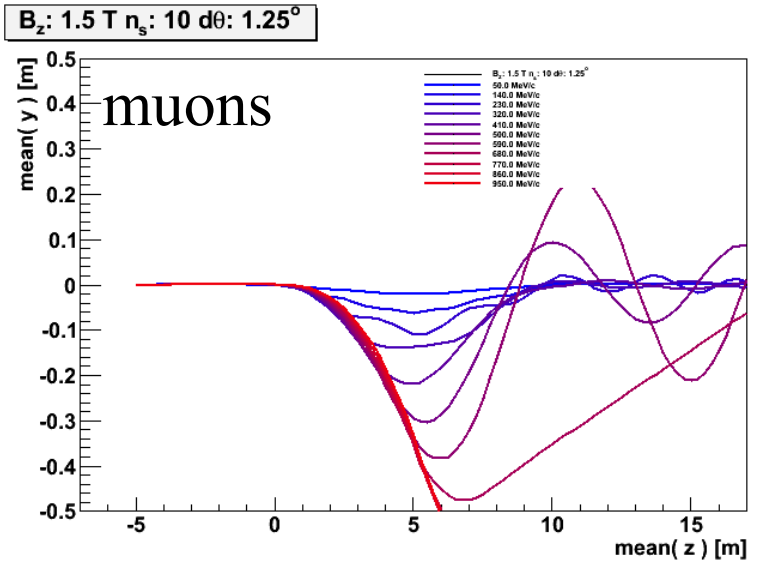


Test particles

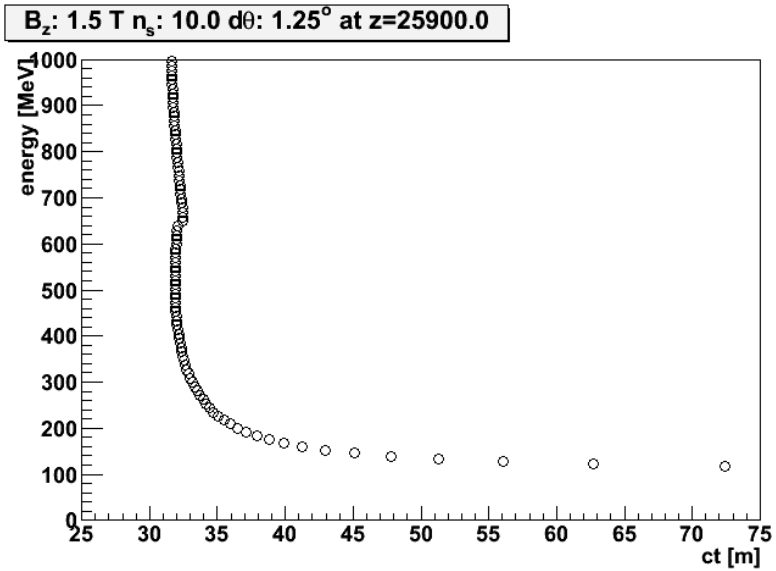


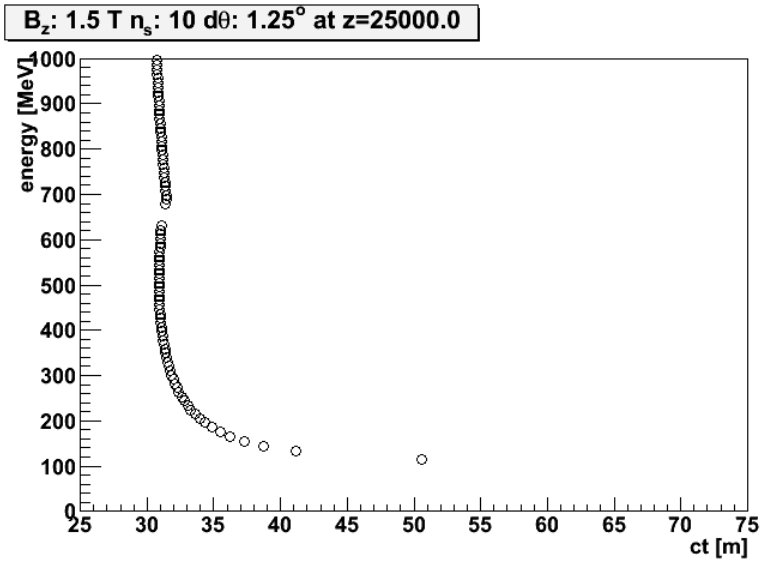






Energy-time distribution

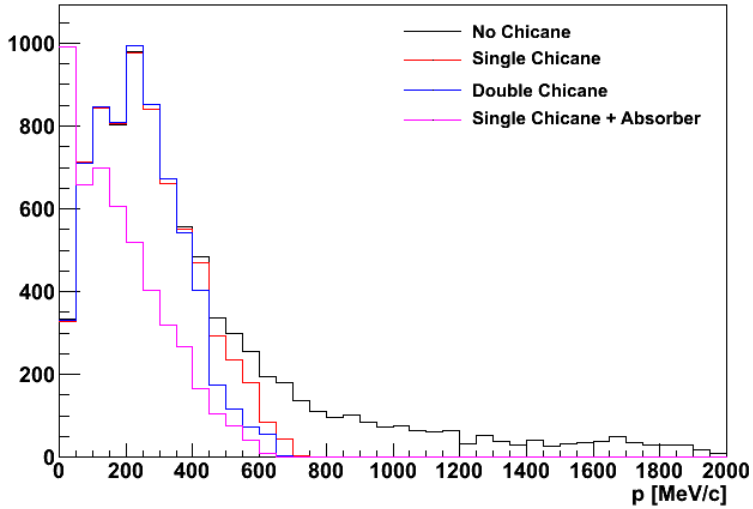




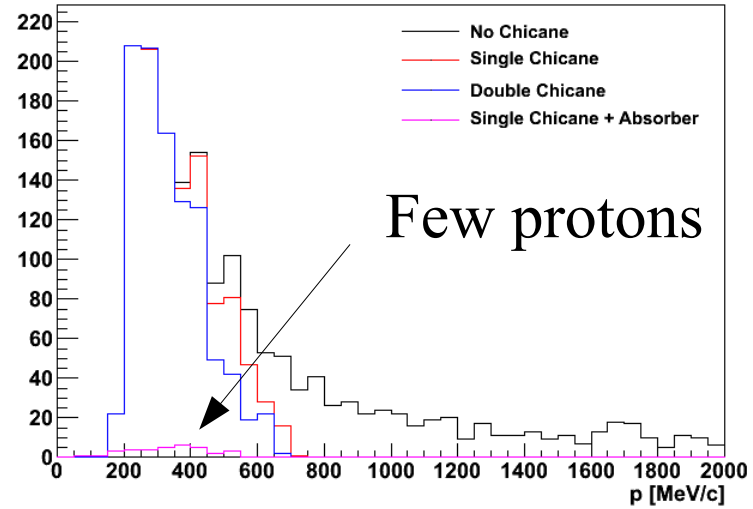
- Longitudinal distribution relatively unharmed

Full beam transmission

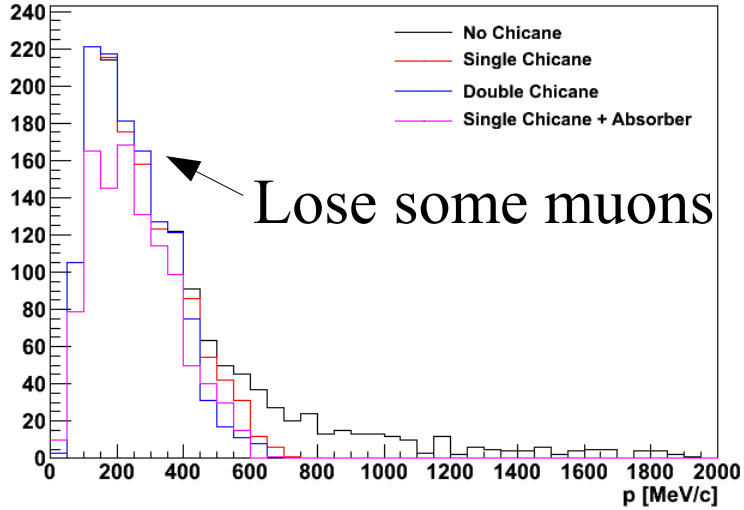
all particles with r<400.0 mm



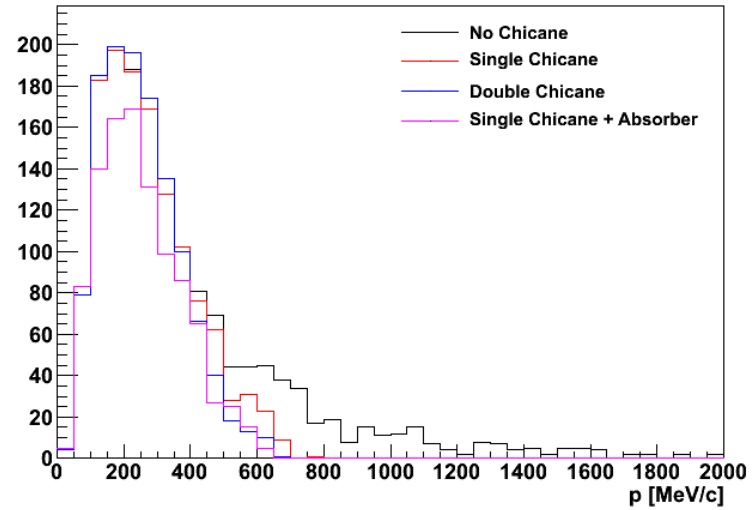
proton with r<400.0 mm



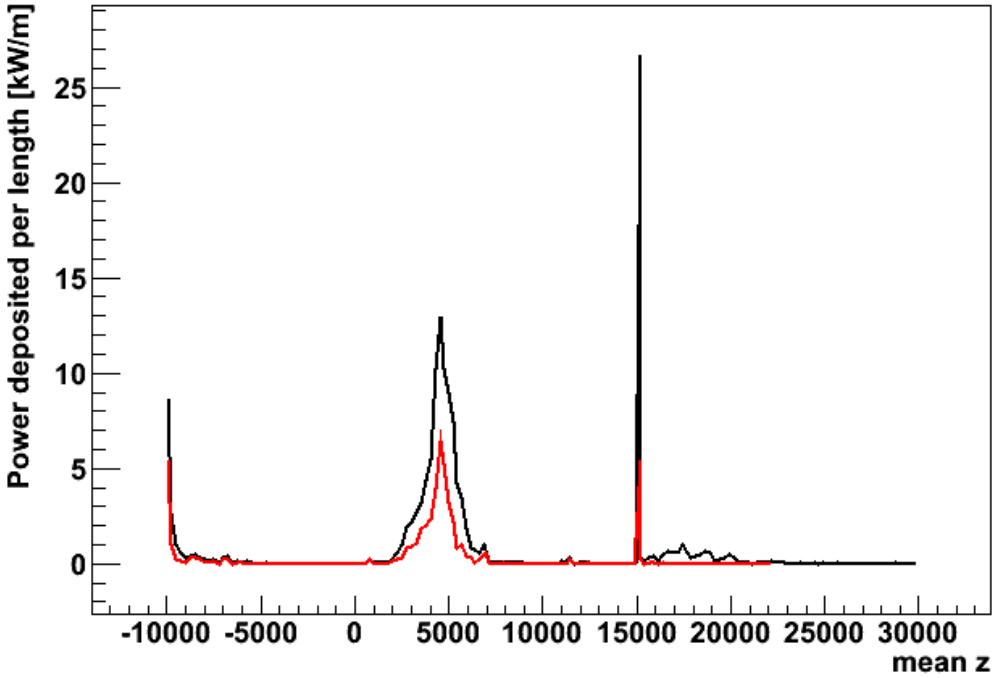
mu- with r<400.0 mm



mu+ with r<400.0 mm

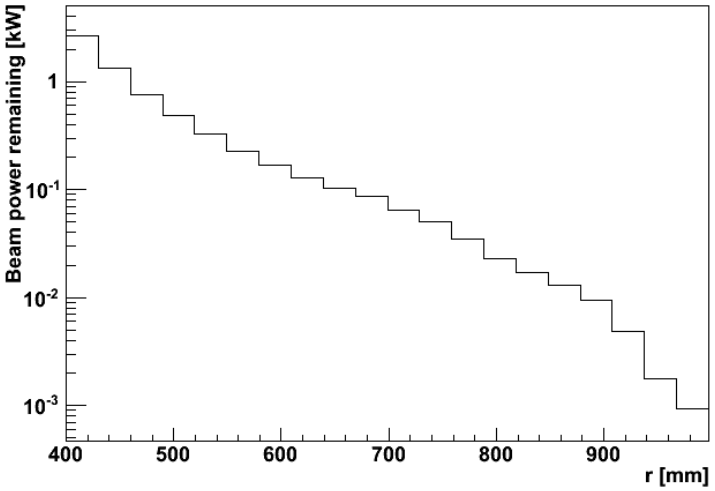


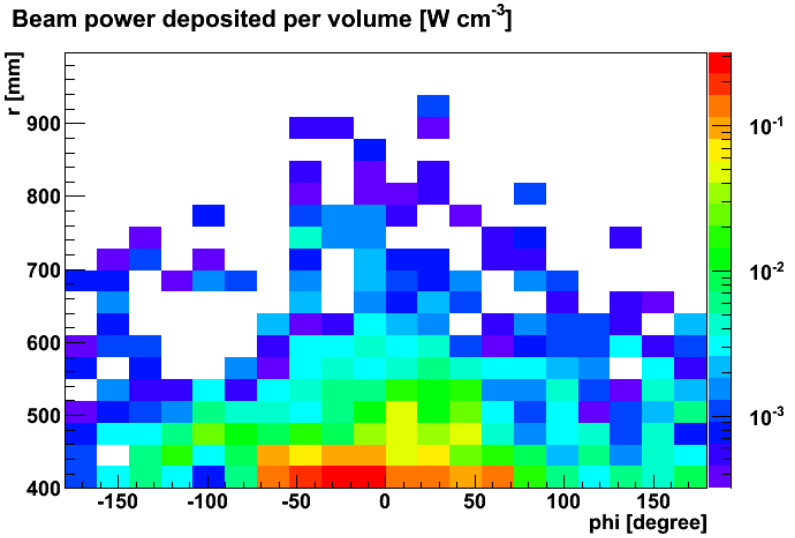
Power deposited along beam line



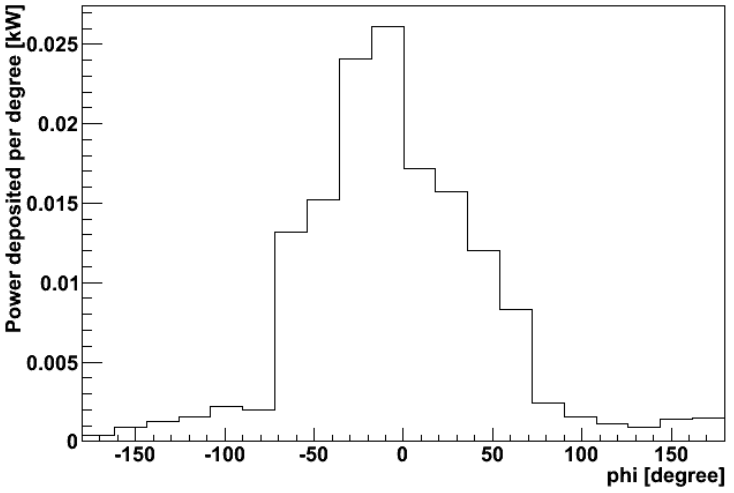
- Big spike in the chicane
  - Reverse the bend at ~z=5000 (maximum vertical dispersion)
- Big spike around the proton absorber
  - Note some energy ends up in surrounding coils
- Normalisation is suspect

Power deposition vs depth





- Power deposition around coil
  - Assume Tungsten(!)
  - Tells us how much shielding is required
  - e.g. 90% of energy is deposited between 400 and 600 mm



Power deposition vs depth

- Looks like we lose some muon rate from the proton absorber
- Drastically reduce the number of protons coming through the front end
- Full front end monte carlo to decide
  - How much proton beam remains
  - How bad is the muon rate reduction
- Need some clean up
  - Check beam power normalisations