Pointing Update

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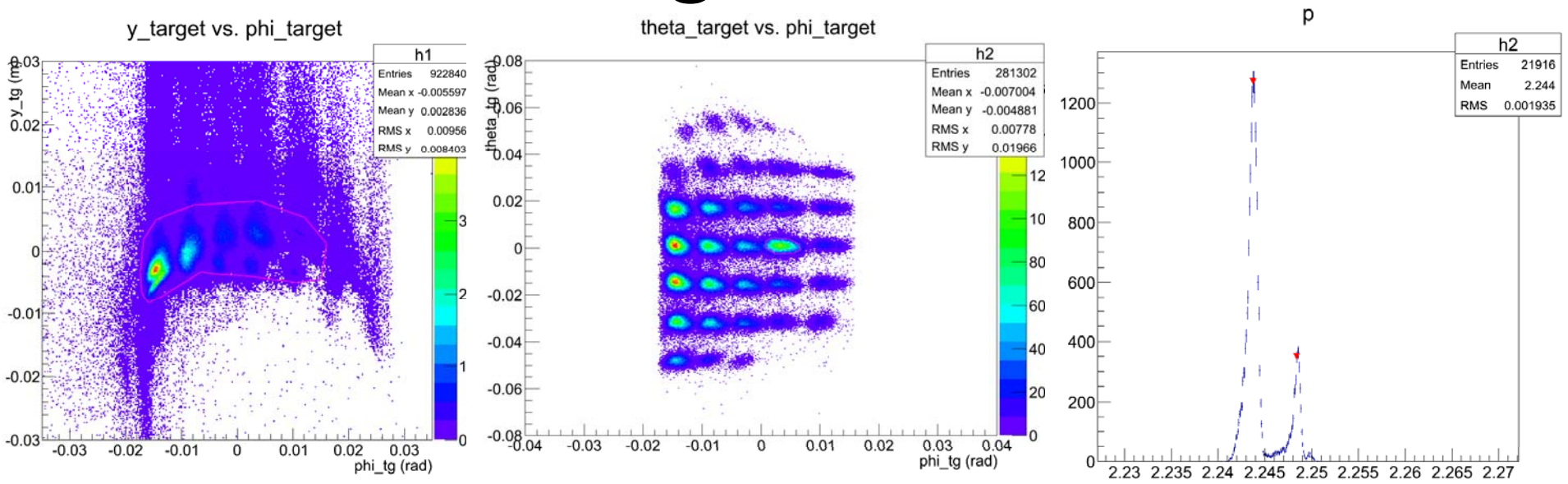
01/08/2014

Pointing Calculation



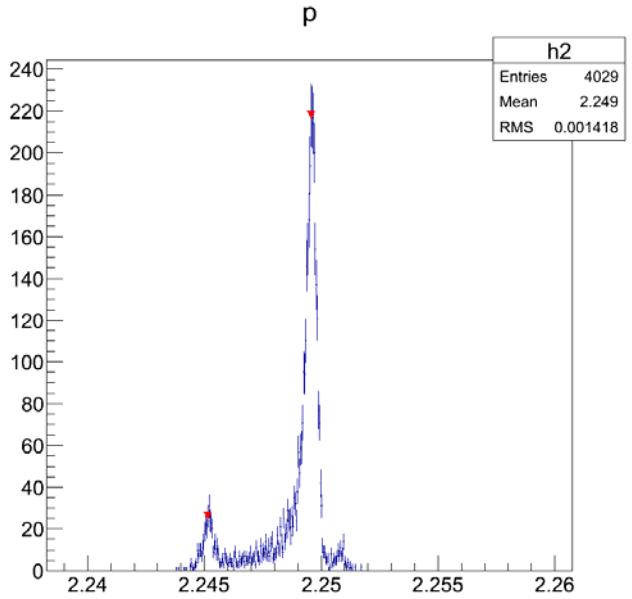
- LHe center at 0, C foil at -13mm
  - considered angle difference correction
- beam_x = -3.6mm (from fitting of focal plane data)
  beam_y = 1.4mm (from bpm)
- Results: LHRS 5.49 °, RHRS 5.53°

Pointing Uncertainty

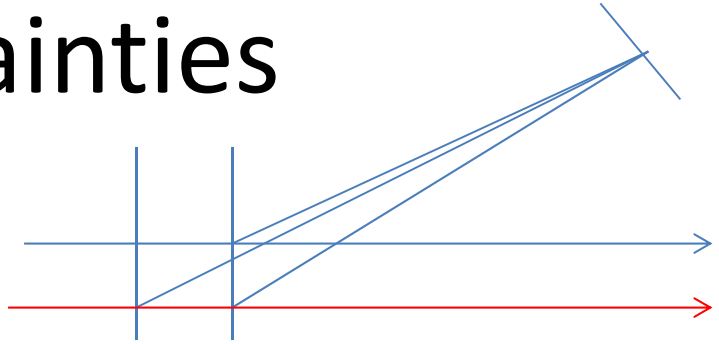
- Uncertainty calculation – see the document
- C & He4, E=2.254 GeV

$$d\left(\Delta E^{'}\right) \approx 4.5 \times 10^{-5} GeV$$

- Use C12 ground state and 1st excited state to calibrate d(ΔE’)
  - Nominal value is 4.44 MeV
  - LHRS 4.40 MeV, RHRS 4.42 MeV
  - Within uncertainty requirement!



Other uncertainties



- Survey 0.12mm
- Beam_x uncertainty 1.5mm
- Add up to about 0.11 deg uncertainty

- Along the He ~ 4.2cm distribution, cross section ~ $1/\sin^4(\theta/2)$, He center is not exact 0

Next

- Carbon foil in LHe is not ideal to do pointing calculation
- CH2 run in longitudinal target field setting
- After optics calibration done with that, will do pointing again