RHIC p-Carbon Polarimeter

Status

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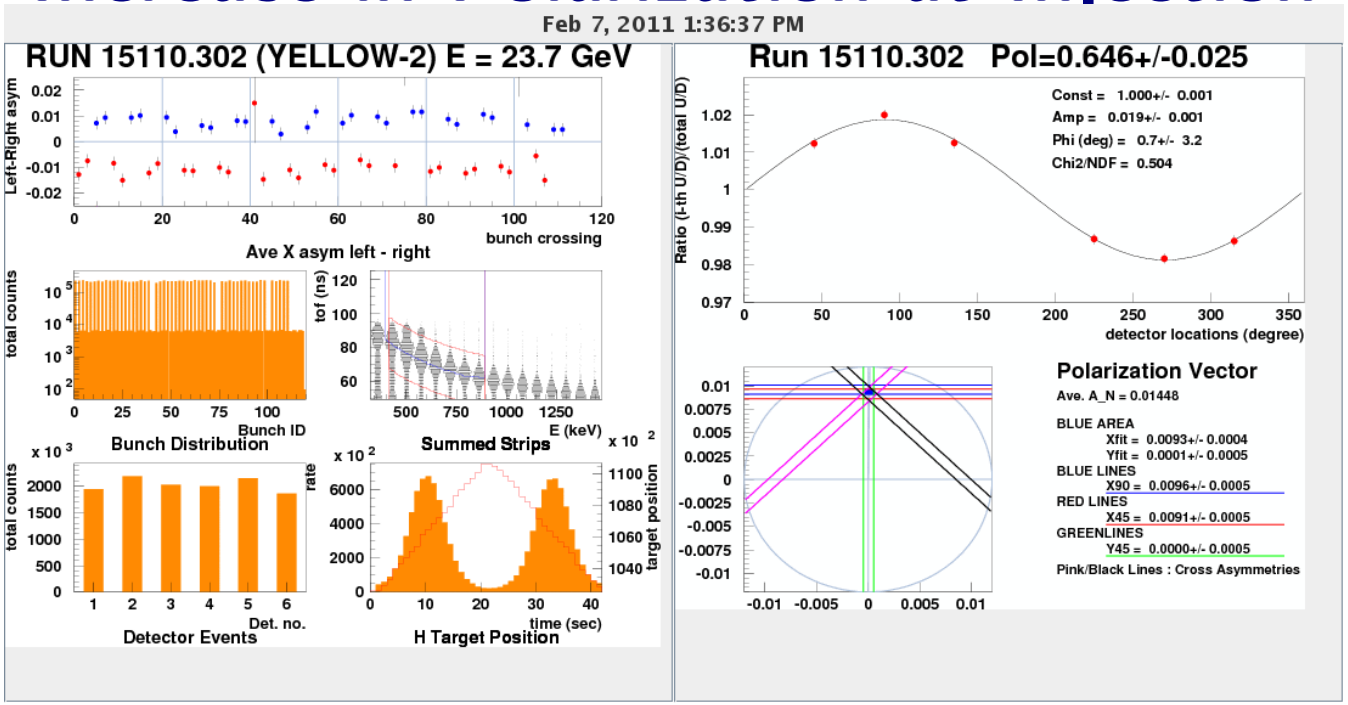
Online Configuration Files

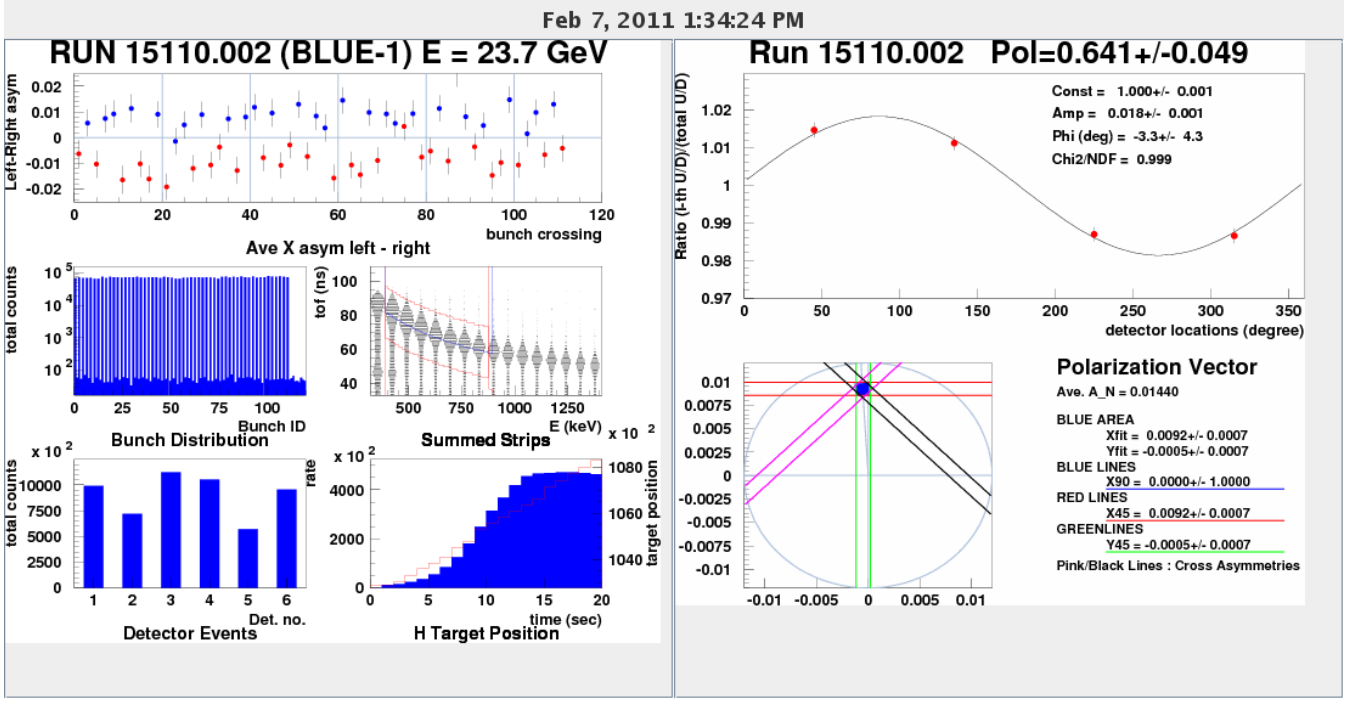
- Updated t_0, $C_\alpha(x_{\mathsf{DL}})$, and E_{loss} for online

$$E_{\mathsf{kin}} = C_\alpha(x_{\mathsf{DL}}) \times ADC + E_{\mathsf{loss}}(x_{\mathsf{DL}})$$

- t_0 is taken from injection runs (TshiftLow $= 0$)
- t_0 for flattop is shifted by $\approx -8, -9$ ns (TshiftHigh $= -8, -9$)
- Parameters defining the size of integration window are now the same for BU and YU
- **Bananas are visible and centered between cuts at both 24 and 250 GeV**
- Didn't have chance to test BD and YD

Increase in Polarization at Injection





Problem

- **Online and offline analyses give different polarization values**
- Known differences:
  - Energy corrections

    $E_{\text{kin}} = C_\alpha(x_{\text{DL}}) \times ADC + E_{\text{loss}}(x_{\text{DL}})$ — linear approximation in online

    $E_{\text{kin}} = E_{\text{kin}}(C_\alpha \times ADC, x_{\text{DL}})$ — full polynomial in offline
  - Online uses scaler histograms
  - In offline we apply -15% correction to $\mathcal{P}$ from Run09
- Proposed solutions
  - Exactly reproduce online analysis in offline (will help to unify the code later)

Options

- We should have only one number for $\mathcal{P}$
- If we can reproduce the online results in offline
  - Use scaler histograms in offline (very fast)
  - Use events in online
  - Fill scaler histograms with E_{kin} corrected with the polynomial