Update of Ω_c^0 lifetime measurement

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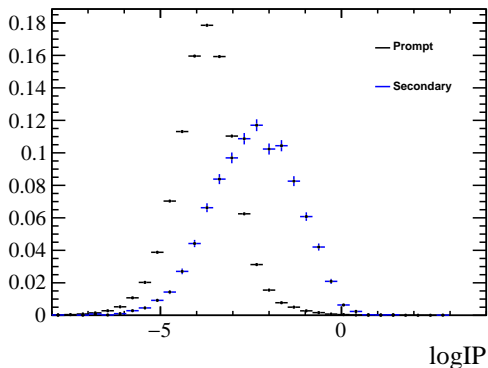Ω_c^0 *lifetime measurement meeting*

April 23, 2018

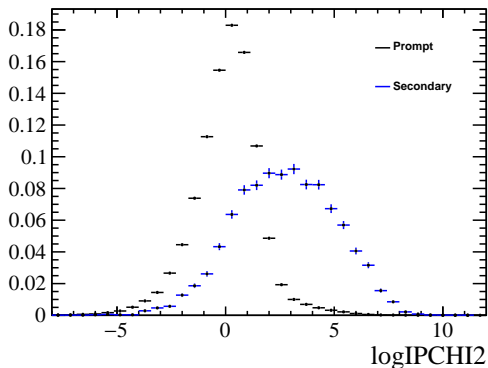# Distributions of $\log(\text{IP})$

- MC Sample
  - Truth-matched Ω_c^0 MC sample
    - ► Prompt: require c quark as mother
    - ► Secondary: require b hadron as mother
  - No further cuts applied

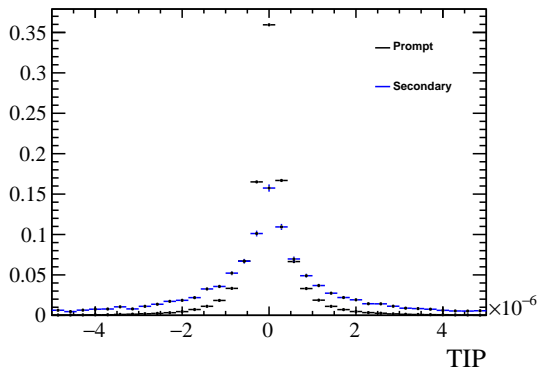# Distributions of $\log(\chi^2_{IP})$

- MC Sample
  - Truth-matched Ω^0_c MC sample
    - Prompt: require c quark as mother
    - Secondary: require b hadron as mother
  - No further cuts applied

Distributions of TIP

- MC Sample
  - Truth-matched Ω_c^0 MC sample
    - Prompt: require c quark as mother
    - Secondary: require b hadron as mother
  - No further cuts applied

Distributions of $\log(\text{IP})$

- **Data Sample**
  - `Hlt2CharmHadXic0ToPpKmKmPipTurbo`
  - Additional PID cuts
- **Total (left)**
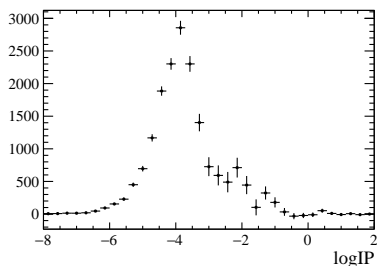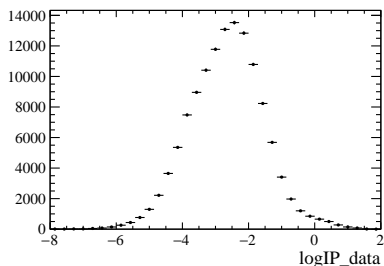- **Background subtracted (right) with mass sideband**
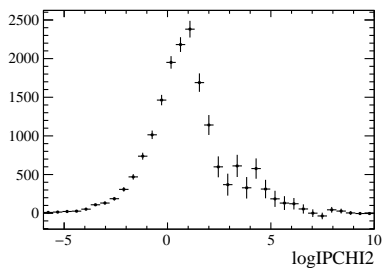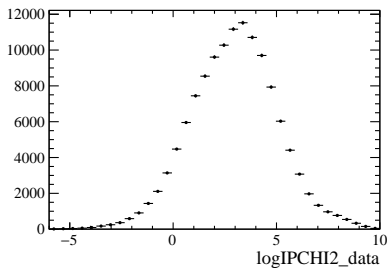
Distributions of $\log(\chi^2_{IP})$

- Data Sample
  - `Hlt2CharmHadXic0ToPpKmKmPipTurbo`
  - Additional PID cuts
- Total (left)
- Background subtracted (right) with mass sideband

Distributions of TIP

- Data Sample
  - `Hlt2CharmHadXic0ToPpKmKmPipTurbo`
  - Additional PID cuts
- Total (left)
- Background subtracted (right) with mass sideband

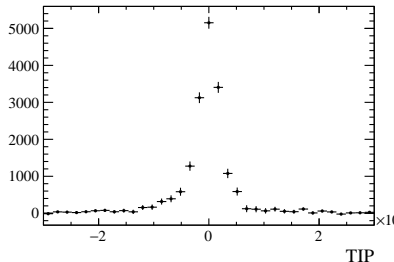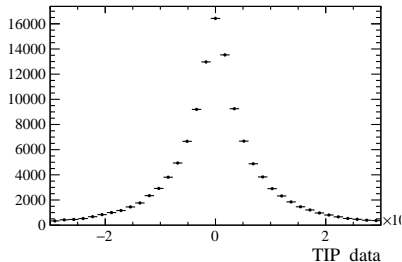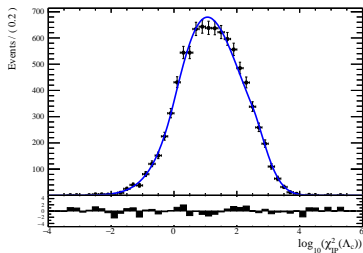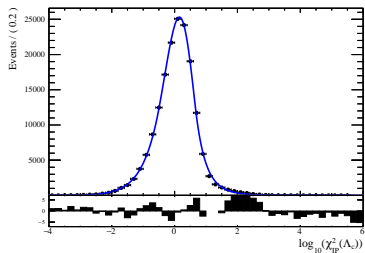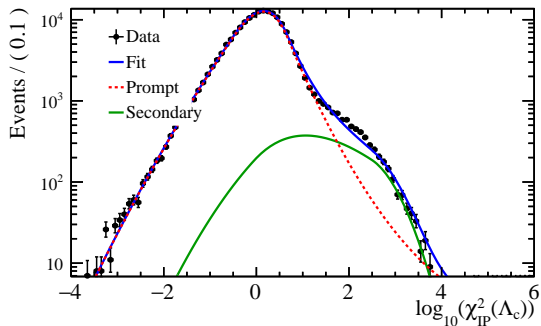# Fit to the $\log_{10}(\chi^2_{IP})$

- Use MC sample to test
- Bifurcated gaussian for both prompt and secondary signals
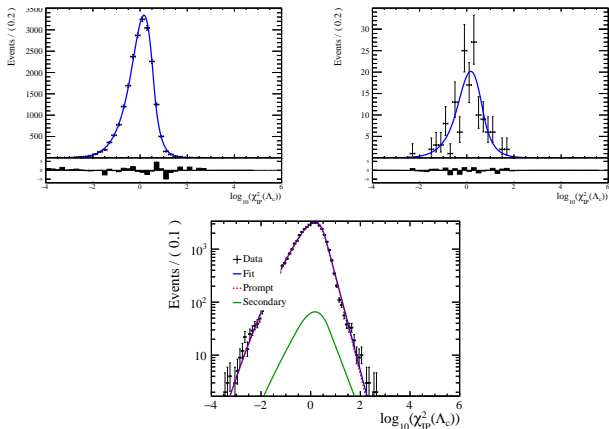- Total sample

Fit to the $\log_{10}(\chi^2_{IP})$

- Use MC sample to test
- Bifurcated gaussian for both prompt and secondary signals
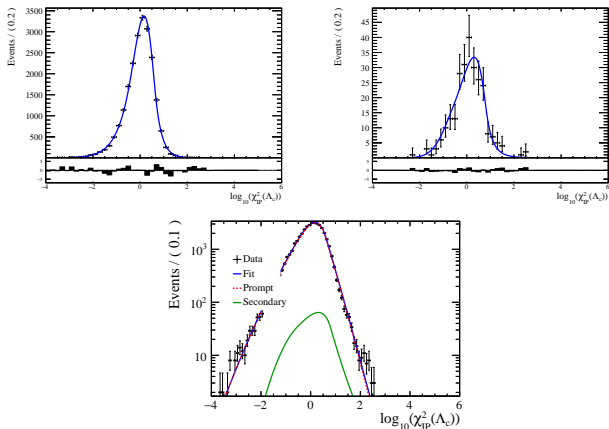- Total sample: fix shape parameters with free secondary fraction

Fit to the $\log_{10}(\chi^2_{IP})$

- Use MC sample to test
- Bifurcated gaussian for both prompt and secondary signals
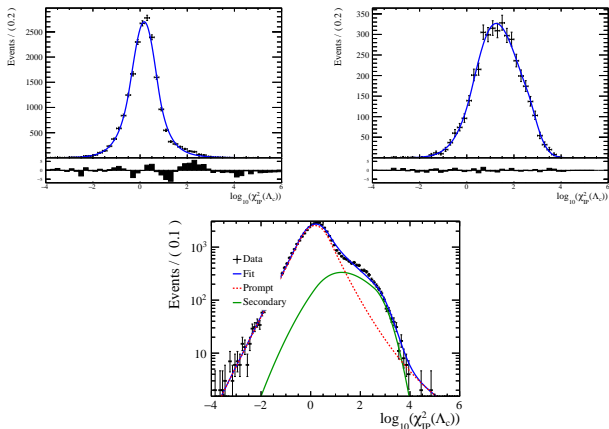- 1st decay time bins: [0.0, 7.5e-05]

Fit to the $\log_{10}(\chi^2_{IP})$

- Use MC sample to test
- Bifurcated gaussian for both prompt and secondary signals
- 2nd decay time bins: [7.5e-05, 0.00017]

Fit to the $\log_{10}(\chi^2_{IP})$

- Use MC sample to test
- Bifurcated gaussian for both prompt and secondary signals
- 3rd decay time bins: [0.00017, 1.0]

Compare with true secondary fractions