

$\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$ Lifetime Measurement

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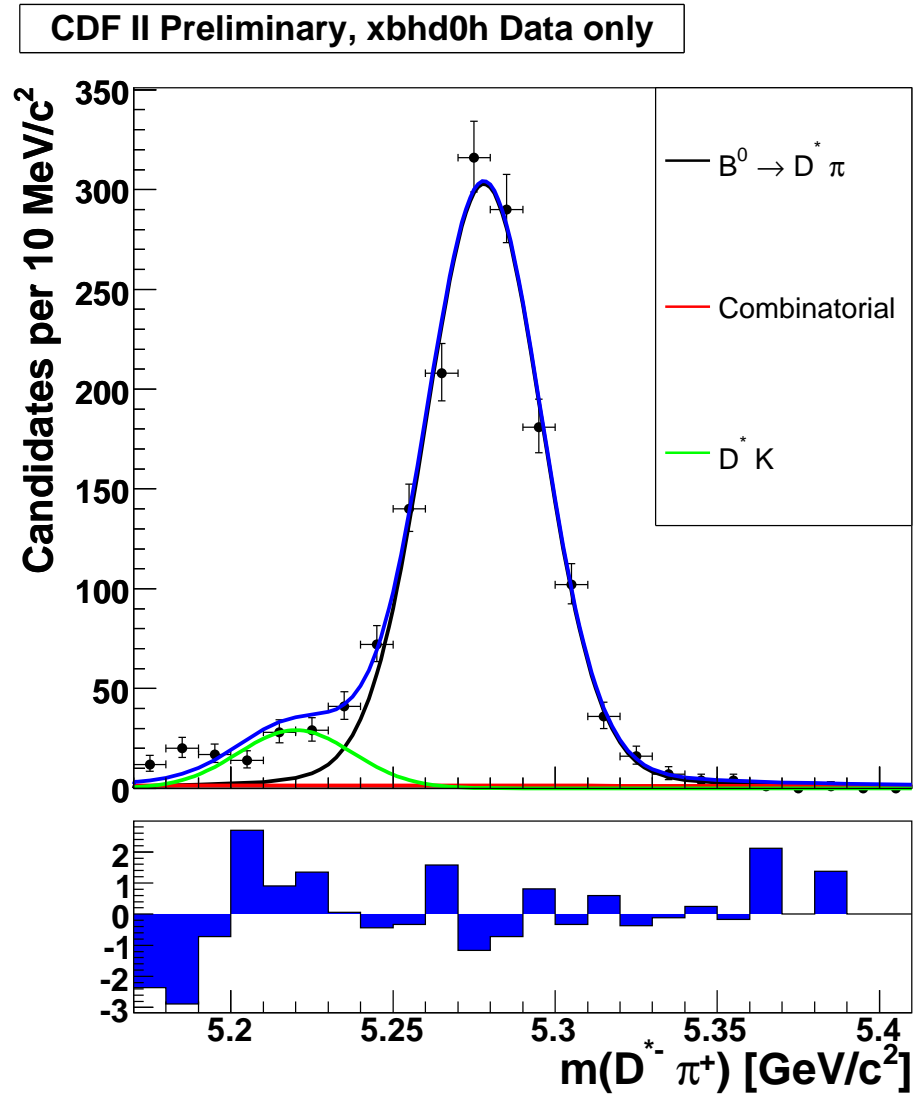
FNAL

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Highlights

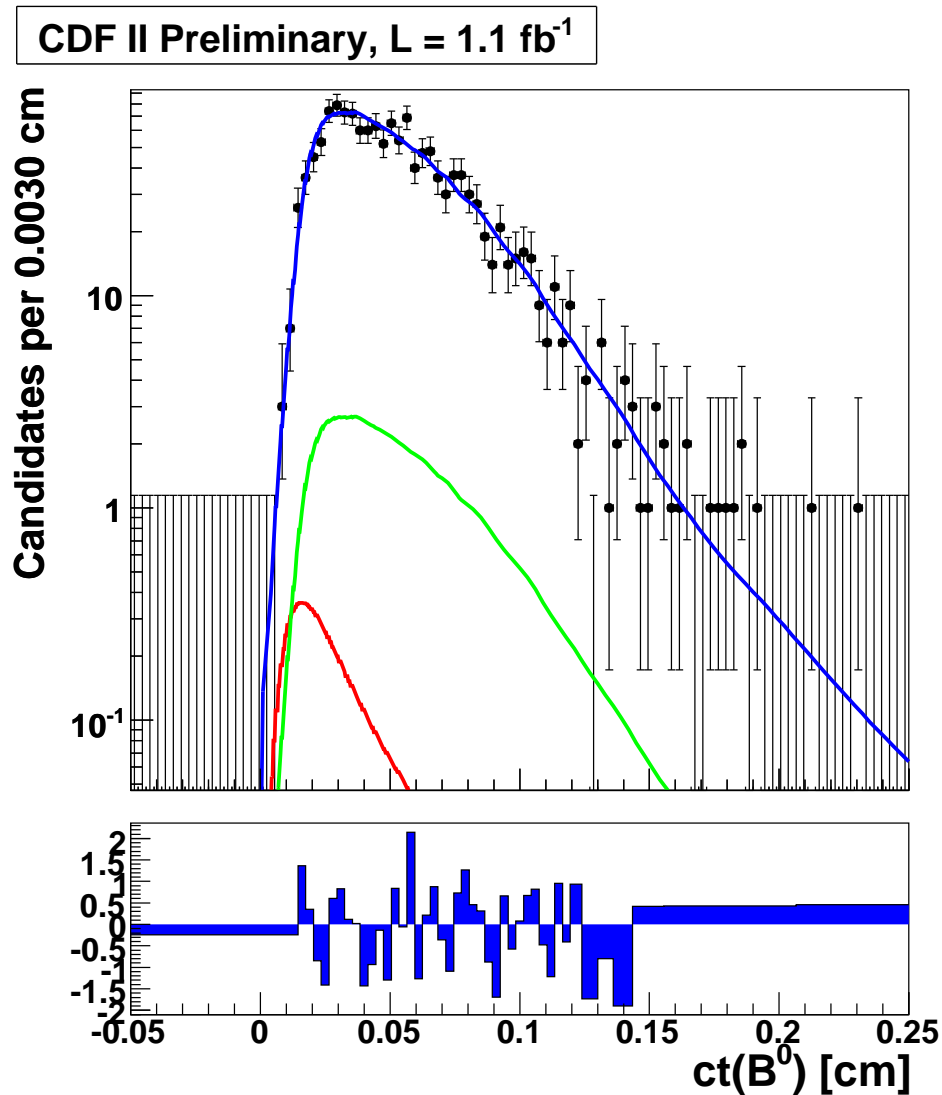
- `cdfnote 8578` has been updated and posted.
- Not many changes since the last BMLCPV presentation.
- We are ready for blind pre-blessing.

Updated the $B^0 \rightarrow D^{*-} \pi^+$ Cross-check fit



$B^0 \rightarrow D^{*-} \pi^+$ Mass Fit on
xbhd0h data

Updated the $B^0 \rightarrow D^{*-} \pi^+$ Cross-check fit



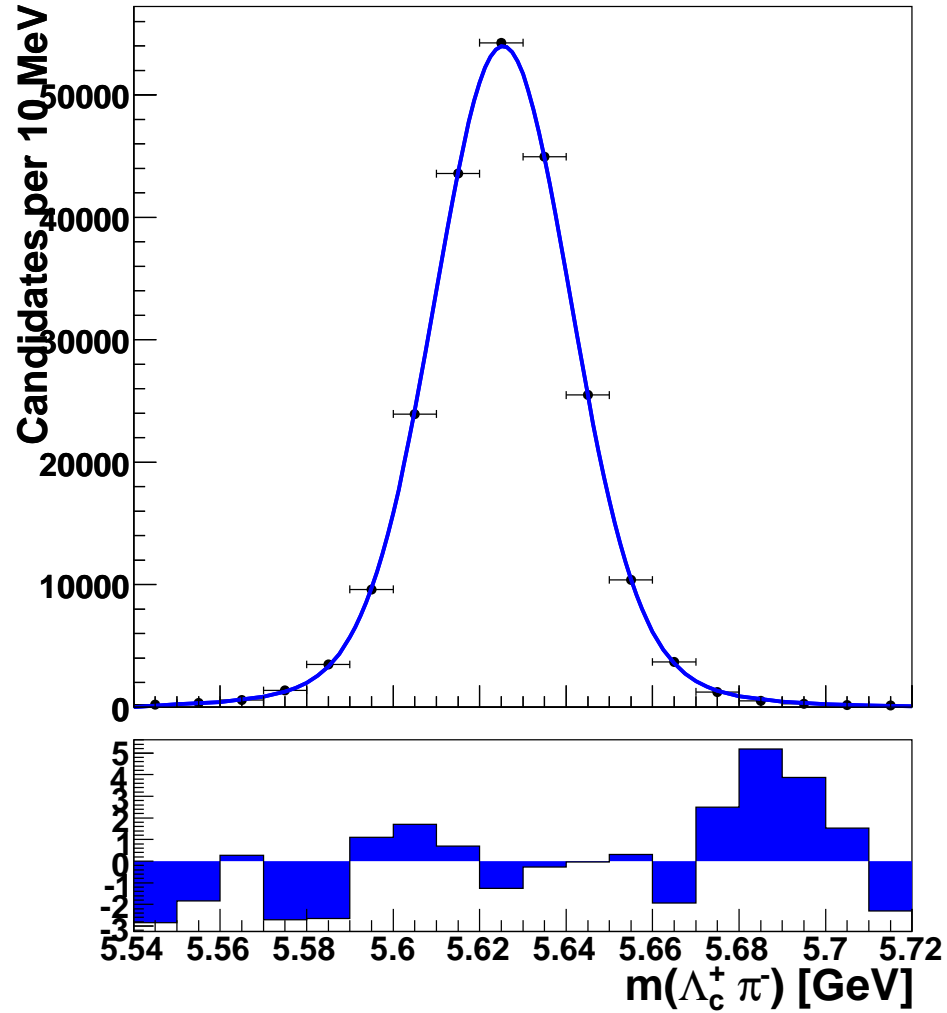
$B^0 \rightarrow D^{*-} \pi^+$ Lifetime
Projection.

$$c\tau(B^0) = 451.2 \pm 17.8 \mu m$$

Compatible with Amanda's
 $467.9 \pm 18.2 \mu m$ in the same
sample.

Signal Monte Carlo Cross-Check

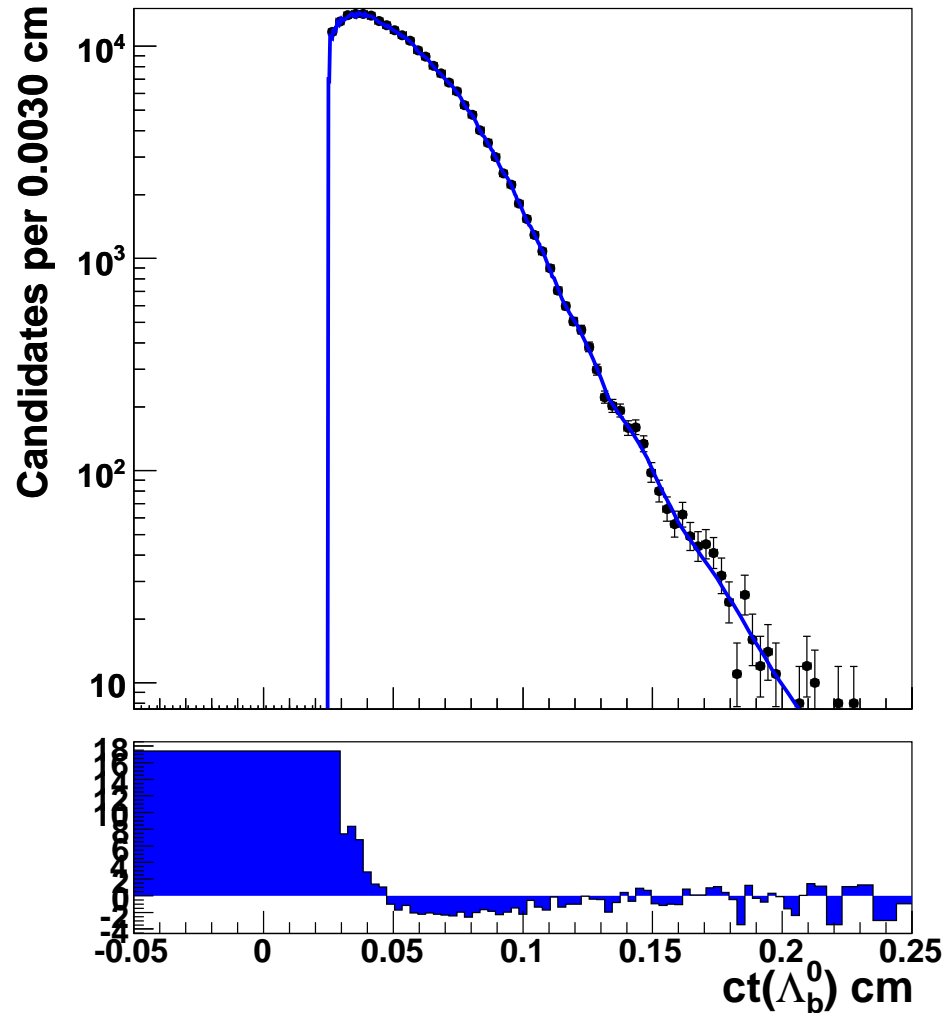
Bgenerator Signal-Only Monte Carlo



New mass plot w/ residuals.

Signal Monte Carlo Cross-Check

CDF II Preliminary, $L = 1.1 \text{ fb}^{-1}$

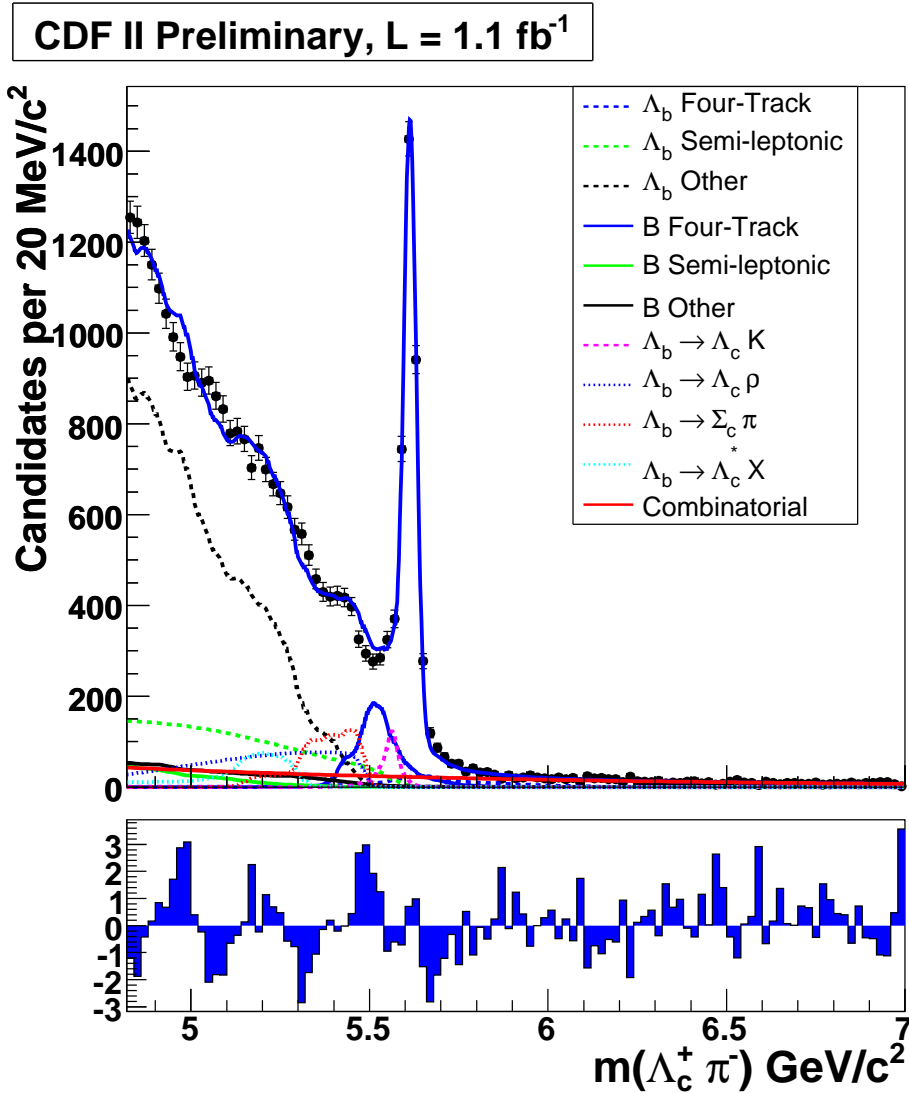


New lifetime projection w/
fit residuals.
Lifetime result has not
changed.

$$ct(\Lambda_b^0) = 370.2 \pm 1.3 \mu m$$

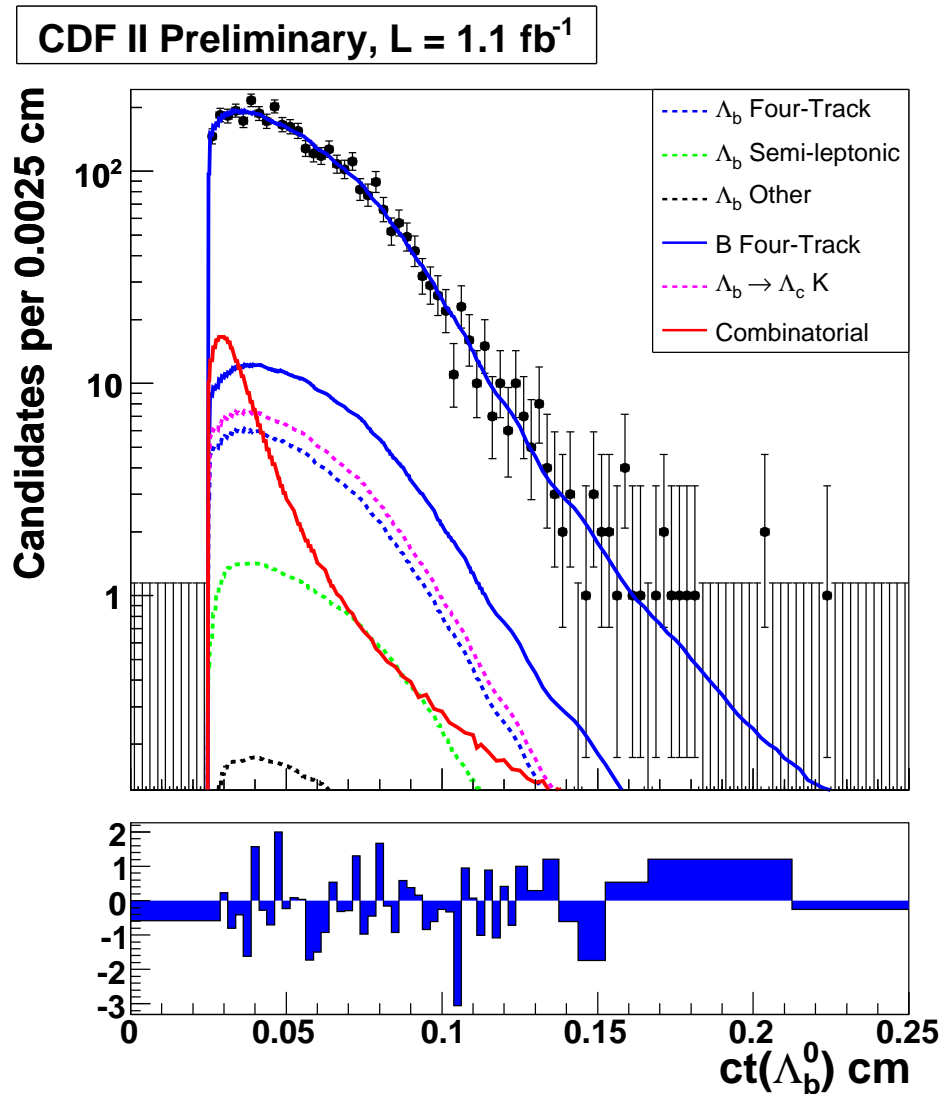
Compare to the
generated value of
 $c\tau(\Lambda_b^0) = 368.7 \mu m$.

Baseline Blinded Data Fit



New mass plot w/ residuals.
The fit has not changed.

Baseline Blinded Data Fit



New lifetime projection w/
residuals.

Blinded Fit Result:

$$ct(\Lambda_b^0) = X.X \pm 10.7(\text{stat.}) \pm 8.5(\text{syst.}) \mu\text{m}$$

Summary of Systematic Errors

Description	Value [μm]
Alignment	2.4
Fitter bias	negligible
Background mass template shapes	negligible
Background normalization	4.0
Impact parameter correlation	1.0
Re-weighting the Λ_c Dalitz fractions	6.4
Re-weighting the polarization	-1.6
Re-weighting trigger track-pair distribution	-2.2
Re-weighting the $p_T(\Lambda_b^0)$ spectrum	-1.0
Combinatorial ct template	negligible
$c\tau(B^0)$	negligible
Global scale factor	negligible
σ_{ct} binning	negligible
Total Systematic Uncertainty	8.5

Conclusion

- cdfnote 8578 has been updated and posted.
- Please read our note and ask questions.
- We are ready to blind pre-bless on Thursday.