

Update of Ω_c^0 lifetime measurement

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Ω_c^0 lifetime measurement meeting

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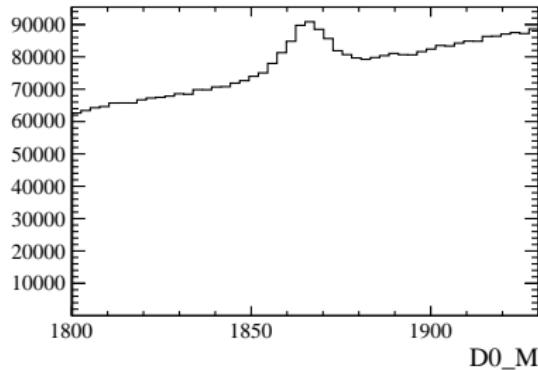
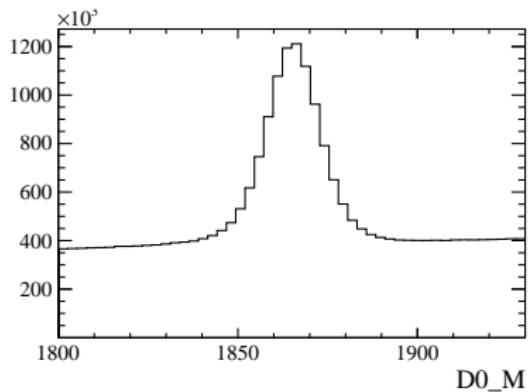
Possible control modes

- $D^{*+} \rightarrow D^0(\rightarrow K^-\pi^-\pi^+\pi^+)\pi^+$
- $D^{*+} \rightarrow D^0(\rightarrow K^-K^+\pi^-\pi^+)\pi^+$
 - 2016 MC available: 27165003

DaughtersCuts	TRCHI2DOF < 3.0 PT > 250.0 P > 1000.0 MIPCHI2DV(PRIMARY) > 3.0
K	PIDK > 5
π	PIDK < 5
CombinationCuts	(APT1+APT2+APT3+APT4) > 1800.0 AP > 25000.0 ADOCA(i,4) < 100.0, i=1,2,3 ACHI2DOCA(i,4) < 10.0, i=1,2,3
MotherCuts	CHI2VXNDOF < 12.0 PT > 2000.0 P > 30000.0 BPVDIRA > cos(0.02) BPVLTIME() > 0.0001 BPVVDCHI2 > 25

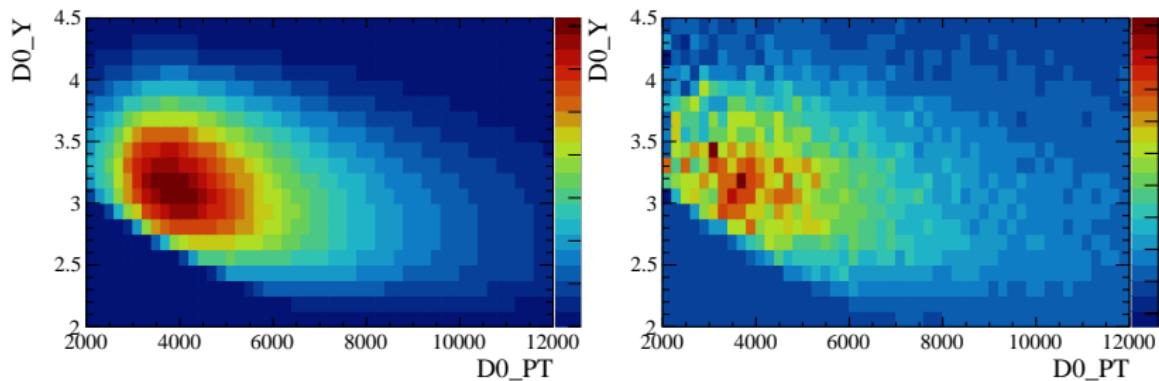
Invariant mass distribution (partial 2016 MagDown sample)

- $D^{*+} \rightarrow D^0(\rightarrow K^-\pi^-\pi^+\pi^+)\pi^+$ (left)
- $D^{*+} \rightarrow D^0(\rightarrow K^-K^+\pi^-\pi^+)\pi^+$ (right)



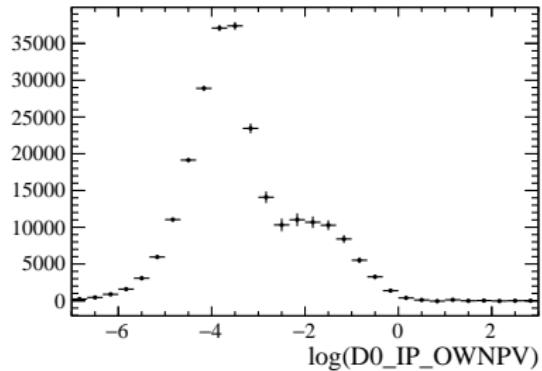
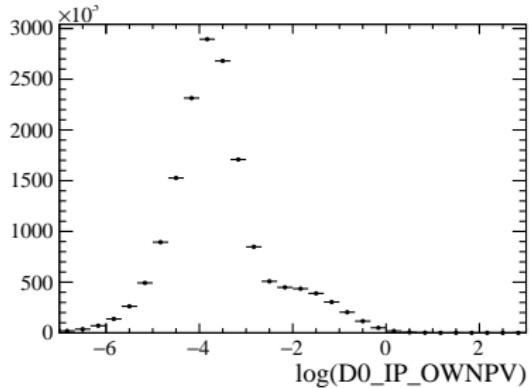
Kinematic distribution (partial 2016 MagDown sample)

- $D^{*+} \rightarrow D^0(\rightarrow K^-\pi^-\pi^+\pi^+)\pi^+$ (left)
- $D^{*+} \rightarrow D^0(\rightarrow K^-K^+\pi^-\pi^+)\pi^+$ (right)



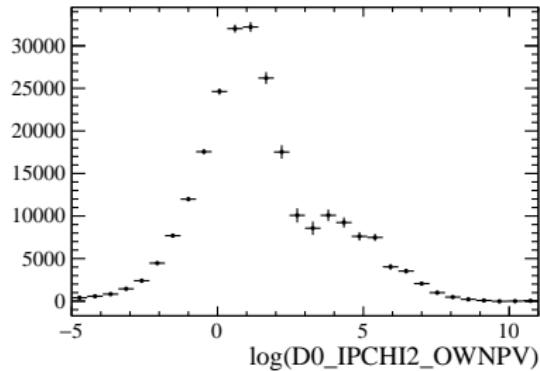
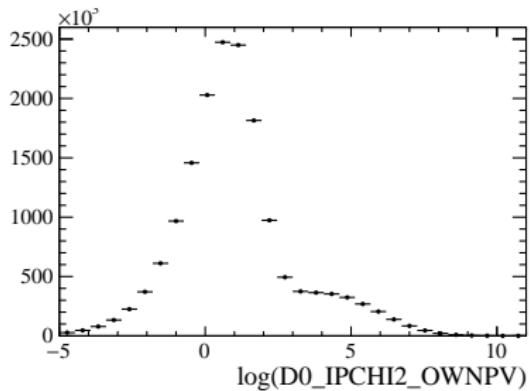
$\log(\text{IP})$ distribution (partial 2016 MagDown sample)

- Background-subtracted with mass sideband
- $D^{*+} \rightarrow D^0 (\rightarrow K^- \pi^- \pi^+ \pi^+) \pi^+$ (left)
- $D^{*+} \rightarrow D^0 (\rightarrow K^- K^+ \pi^- \pi^+) \pi^+$ (right)



$\log(\text{IPCHI2})$ distribution (partial 2016 MagDown sample)

- Background-subtracted with mass sideband
- $D^{*+} \rightarrow D^0 (\rightarrow K^-\pi^-\pi^+\pi^+)\pi^+$ (left)
- $D^{*+} \rightarrow D^0 (\rightarrow K^-K^+\pi^-\pi^+)\pi^+$ (right)



Filtered MC request

- To disable PID cuts in Hlt2 lines
 - Option1: Use modified Moore settings without the PID cuts, from [this JIRA task](#)
 - Option2: Write a new turbo line without PID cuts for the request

Backup

Omegac turbo line selection

Items	Cuts
Daughter K	(TRCHI2DOF<3) (PT>500.) (P>1000.) (PIDK>10.) (MIPCHI2DV(PRIMARY) > 4.0)
Daughter π	(TRCHI2DOF<3) (PT>500.) (P>1000.) (PIDK<0.) (MIPCHI2DV(PRIMARY) > 4.0)
Daughter p	(TRCHI2DOF<3) (PT>500.) (P > 10000.) (PIDp > 10.0) & ((PIDp-PIDK) > 5.0) (MIPCHI2DV(PRIMARY) > 4.0)
CombinationCut	(in_range(2386.0, AM, 2780.0)) ((APT1+APT2+APT3+APT4) > 3000.0) (AHASCHILD(PT > 1000.0)) (ANUM(PT > 500.0) >= 2) (AHASCHILD((MIPCHI2DV(PRIMARY)) > 8.0)) (ANUM(MIPCHI2DV(PRIMARY) > 6.0) >= 2)
MotherCut	(VFASPF(VCHI2PDOF) < 10.0) (BPVDIRA > cos(0.01)) (BPVLTIME() > 0.0001) (BPVVDCHI2 > 10.0)

Omegac kinematic distribution

