

# $\Omega_c^0$ lifetime measurement

Ao Xu

Tsinghua University

$\Omega_c^0$  lifetime measurement meeting

June 14, 2019



- Turbo ReFit PV bug
- $D^0$  MC re-weighting
- L0 efficiency

- Both

Xic0ToPpKmKmPip

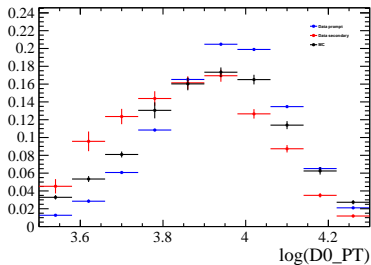
Xic0ToPpKmKmPip\_LTUNB

require ReFit PV but the refitted PVs are neither created nor persisted

- Not clear yet what the impact is

# $D^0$ MC correction

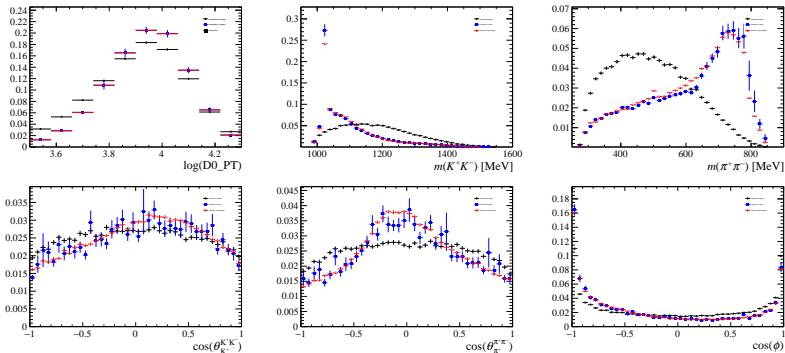
- Tracking
- PID
- L0Hadron
- Dalitz variables
- $p_T(D^0)$



# $D^0$ MC reweighting: cut on L0Hadron

## ■ Procedure

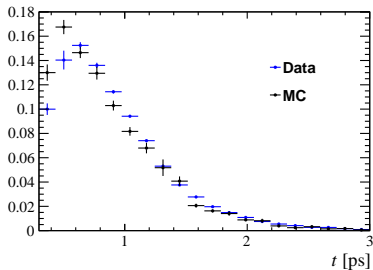
Tracking+PID ==> Dalitz ==> PT(D0)



# $D^0$ decay time distribution

## ■ Procedure

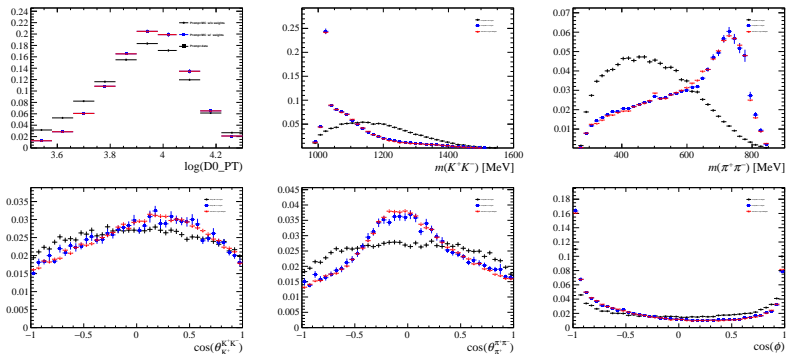
Tracking+PID ==> Dalitz ==> PT(D0)



# $D^0$ MC reweighting: L0Hadron weight

## ■ Procedure

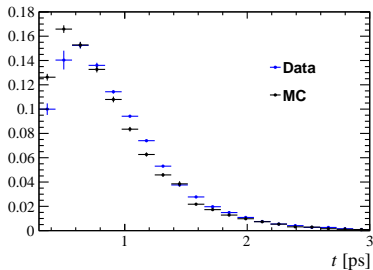
Tracking+PID+L0Hadron ==> Dalitz ==> PT(D0)



# $D^0$ decay time distribution

## ■ Procedure

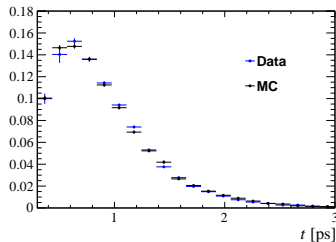
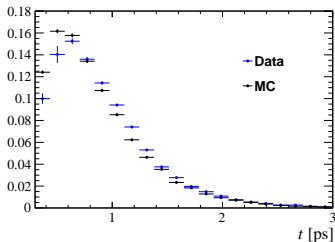
Tracking+PID+LOHadron ==> Dalitz ==> PT(D0)





# $D^0$ decay time distribution

- (left) Tracking+PID
- (right) Tracking+PID+LOHadron ==> Dalitz



$D^0$	TOS [%]	TIS [%]
LOGlobal	14	39
LOHadronDecision	12	22
LOElectronDecision	2	16
LOPhotonDecision	0	8
LOMuonDecision	1	6
LODiMuonDecision	0	1

- The above results come from MC without trigger requirements
- For MC passing turbo line: LOHadronTOS&&LOGlobalTIS>90%