Status report

Yonsei Univ.

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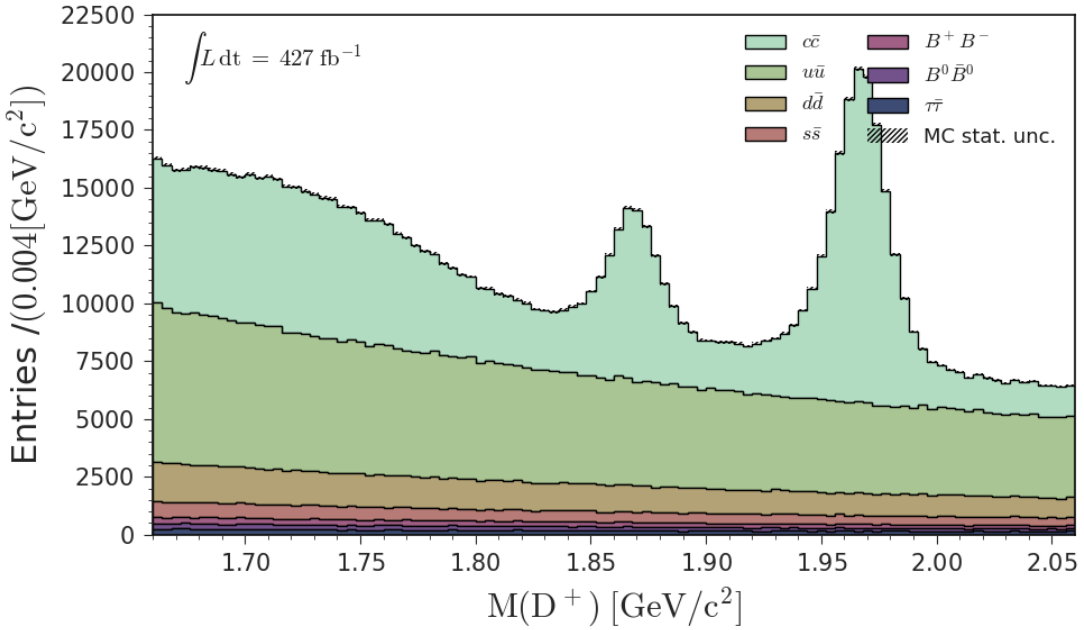
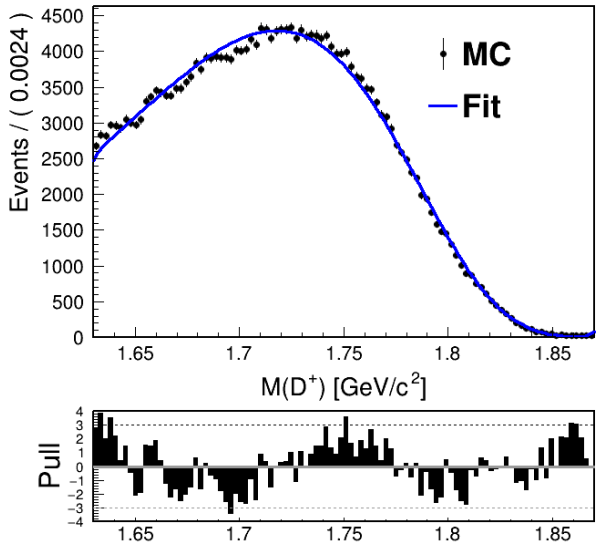
2024.10.22.

$D^+ \to \eta_{\gamma\gamma}\pi^+$

- **Arbitrary tight cuts(to do fit firstly), scaled down to 427/fb**

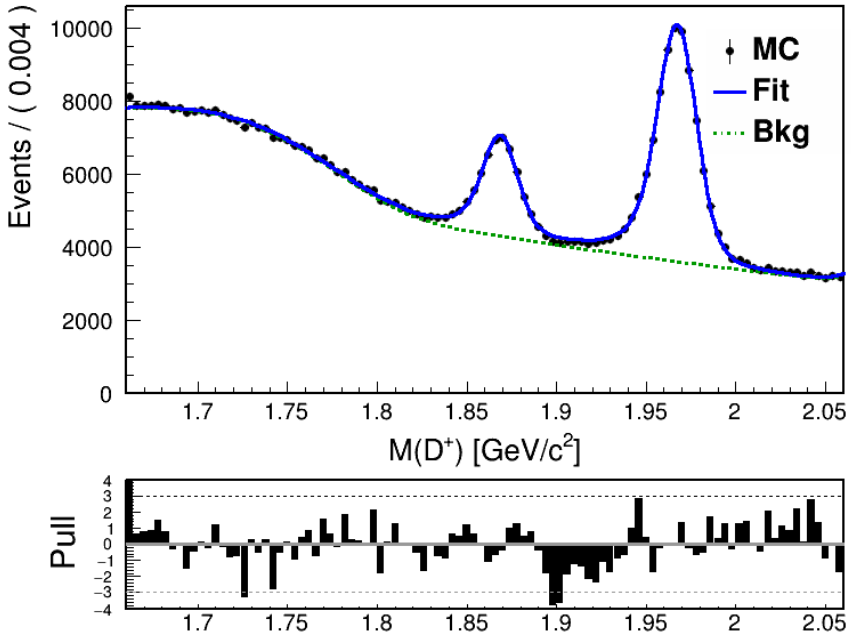




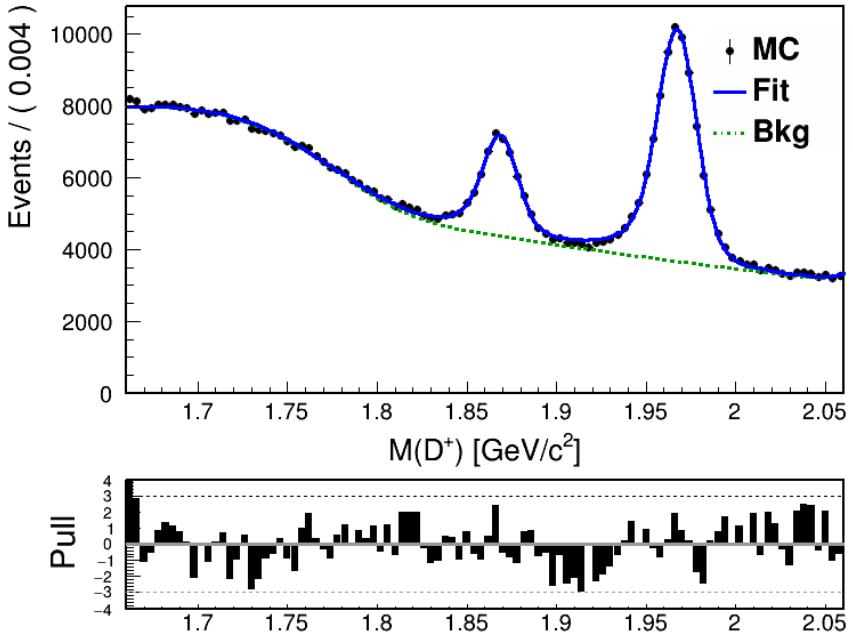
$D^+ \to \eta_{\gamma\gamma}\pi^+$

- **Arbitrary tight cuts(to do fit firstly)**

$D^+ \to (\eta \to \gamma\gamma)\pi^+$



$D^- \to (\eta \to \gamma\gamma)\pi^-$



Only stats. uncertainty

$A_{cp,raw}(D^+, D^\pm)$ = (0.895 ± 0.823)%

$A_{cp,raw}(D_s^+, D_s^-)$ = (0.067 ± 0.381)%

$N_{total}(D^+, D^-)$ = 39544 ± 1327

$N_{total}(D_s^+, D_s^-)$ = 104150 ± 880

$$A_{CP,raw} = A_{FB} + A_\epsilon + A_{CP}$$

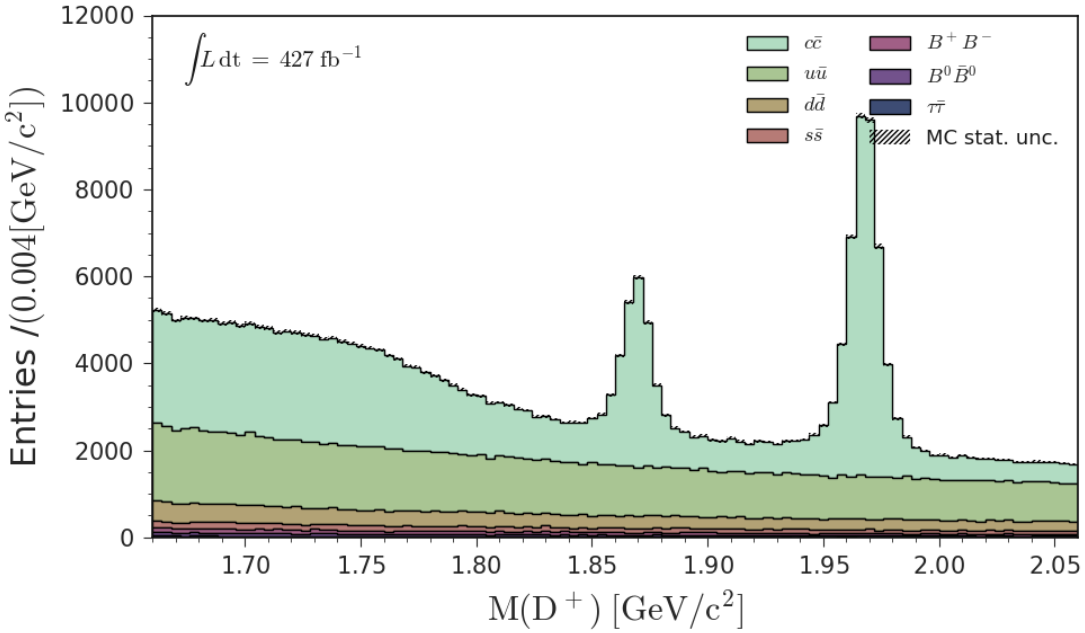
Previous results

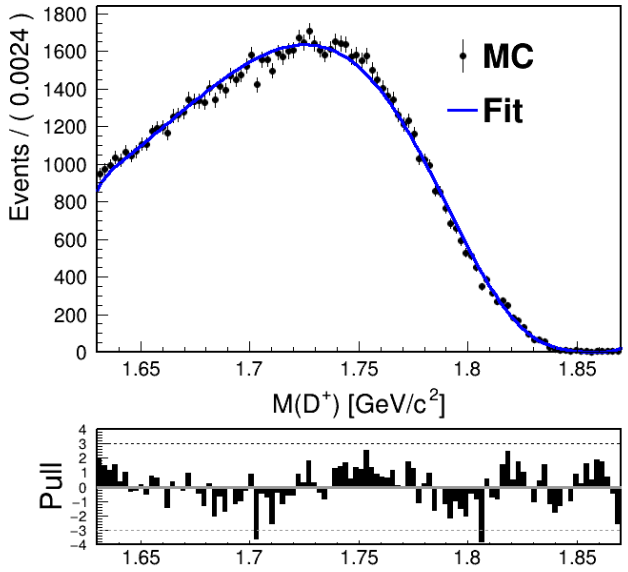
- Belle(2011): (+1.74±1.13±0.19)%
- LHCb(2021): (−0.2±0.8±0.4)%
- LHCb(2023): (0.34 ± 0.66 ± 0.16 ± 0.05)%

Combine 2021 and 2023: (0.13 ± 0.50 ± 0.18)%

$D^+ \to \eta_{3\pi}\pi^+$

- **Arbitrary tight cuts(to do fit firstly), scaled down to 427/fb**

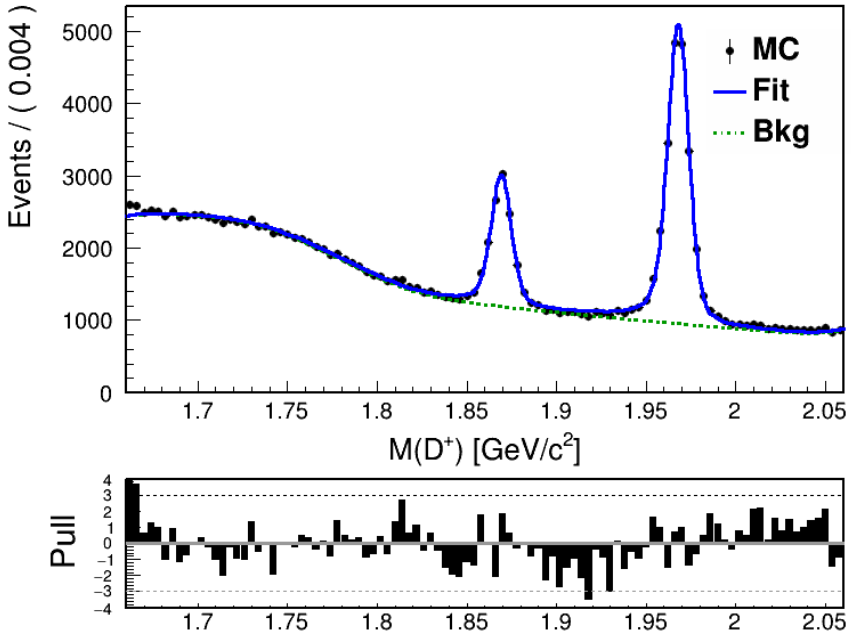




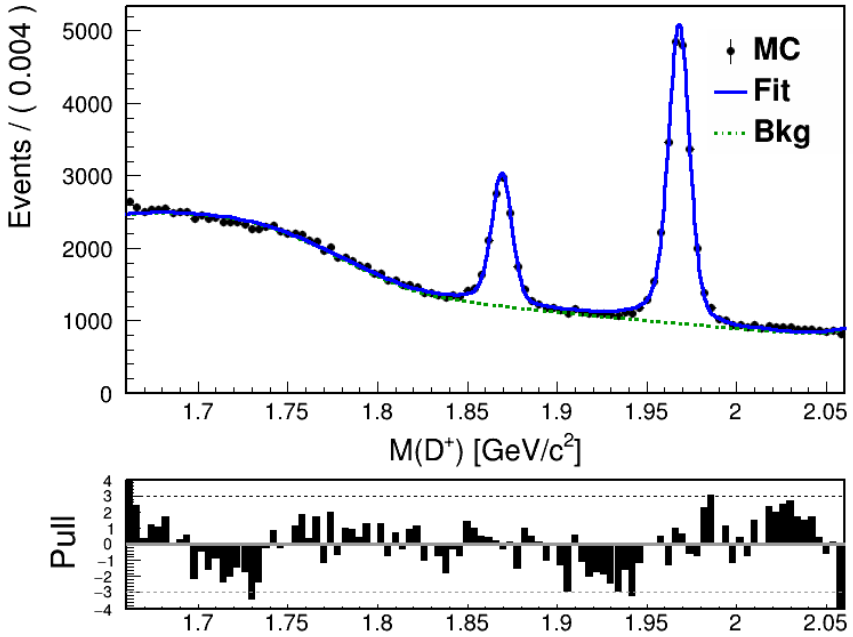
$D^+ \to \eta_{3\pi}\pi^+$

- **Arbitrary tight cuts(to do fit firstly), scaled down to 427/fb**

$D^+ \to (\eta \to \pi^+\pi^-\pi^0)\pi^+$



$D^- \to (\eta \to \pi^+\pi^-\pi^0)\pi^-$



Only stats. uncertainty

$A_{cp,raw}(D^+, D^-)$ = (-0.446 ± 0.946)%

$A_{cp,raw}(D_s^+, D_s^-)$ = (0.215 ± 0.510)%

$N_{total}(D^+, D^-)$ = 15592 ± 207

$N_{total}(D_s^+, D_s^-)$ = 36904 ± 248

$$A_{CP,raw} = A_{FB} + A_\epsilon + A_{CP}$$

Previous results

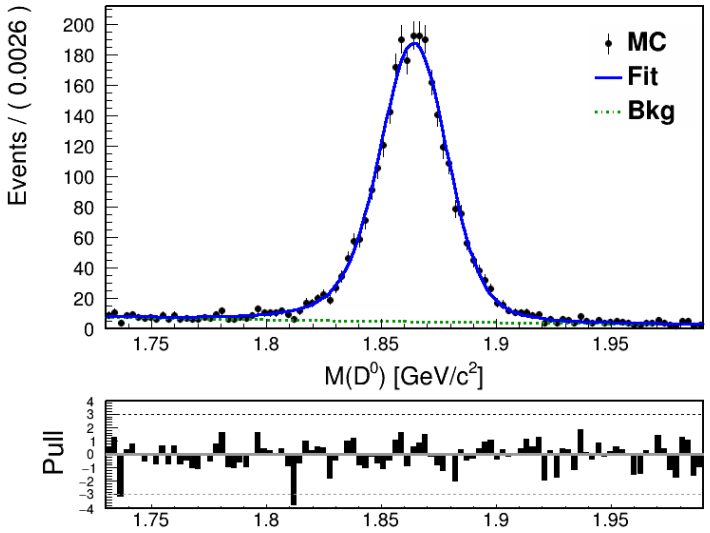
- Belle(2011): (+1.74±1.13±0.19)%
- LHCb(2021): (−0.2±0.8±0.4)%
- LHCb(2023): (0.34 ± 0.66 ± 0.16 ± 0.05)%

Combine 2021 and 2023: (0.13 ± 0.50 ± 0.18)%

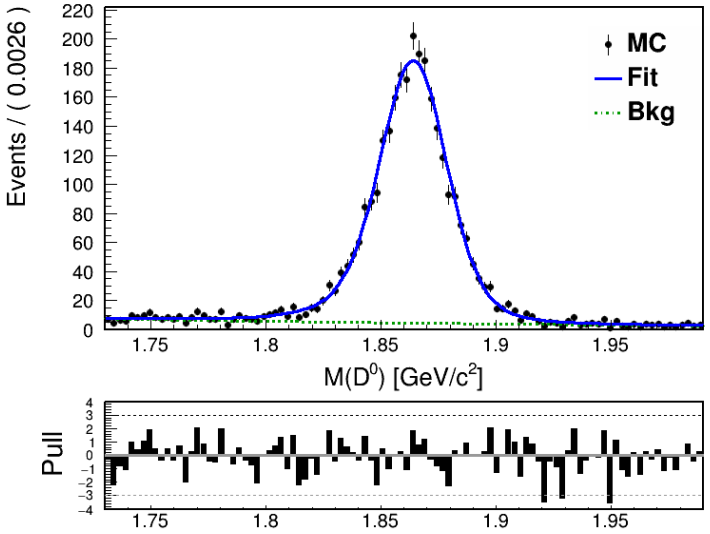
$D^0 \to \eta\eta$

- **Arbitrary tight cuts(to do fit firstly), scaled down to 427/fb**

$D^0 \to (\eta \to \gamma\gamma)(\eta \to \gamma\gamma)$



$\overline{D}^0 \to (\eta \to \gamma\gamma)(\eta \to \gamma\gamma)$



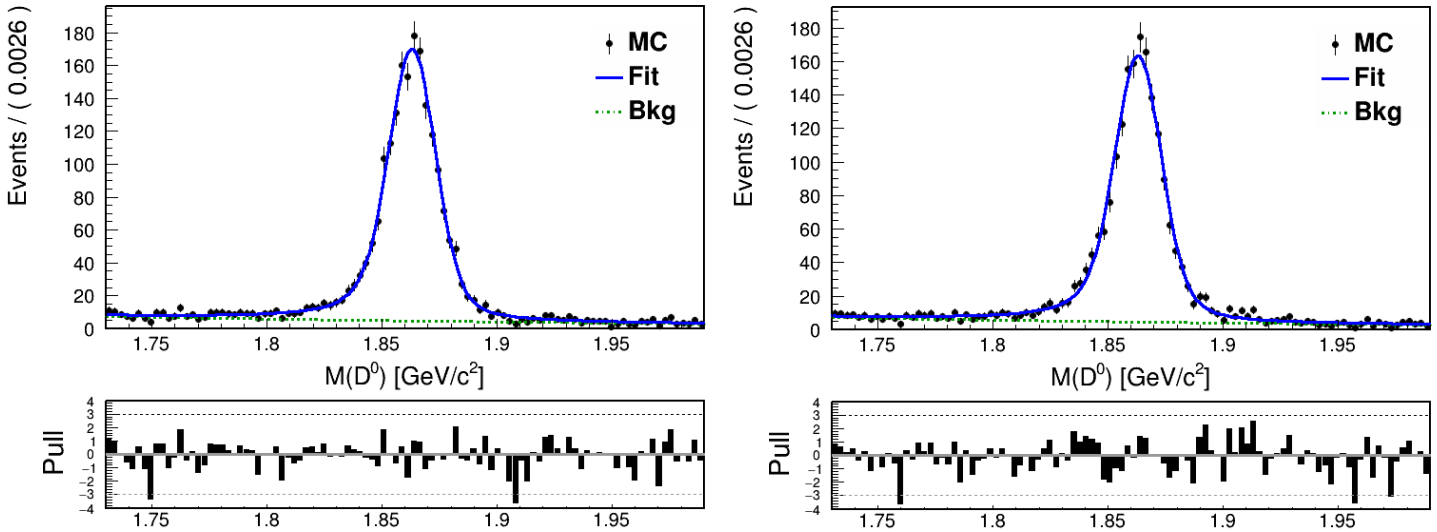
Only stats. uncertainty

$A_{cp,raw}(D^0, \overline{D}^0)$ = (0.783 ± 0.937)%, $N_{total}(D^0, \overline{D}^0)$ = 5640 ± 54

$D^0 \to \eta\eta$

- **Arbitrary tight cuts(to do fit firstly), scaled down to 427/fb**

$D^0 \to (\eta \to \gamma\gamma)(\eta \to \pi^+\pi^-\pi^0)$ $\quad$ $\bar{D}^0 \to (\eta \to \gamma\gamma)(\eta \to \pi^+\pi^-\pi^0)$



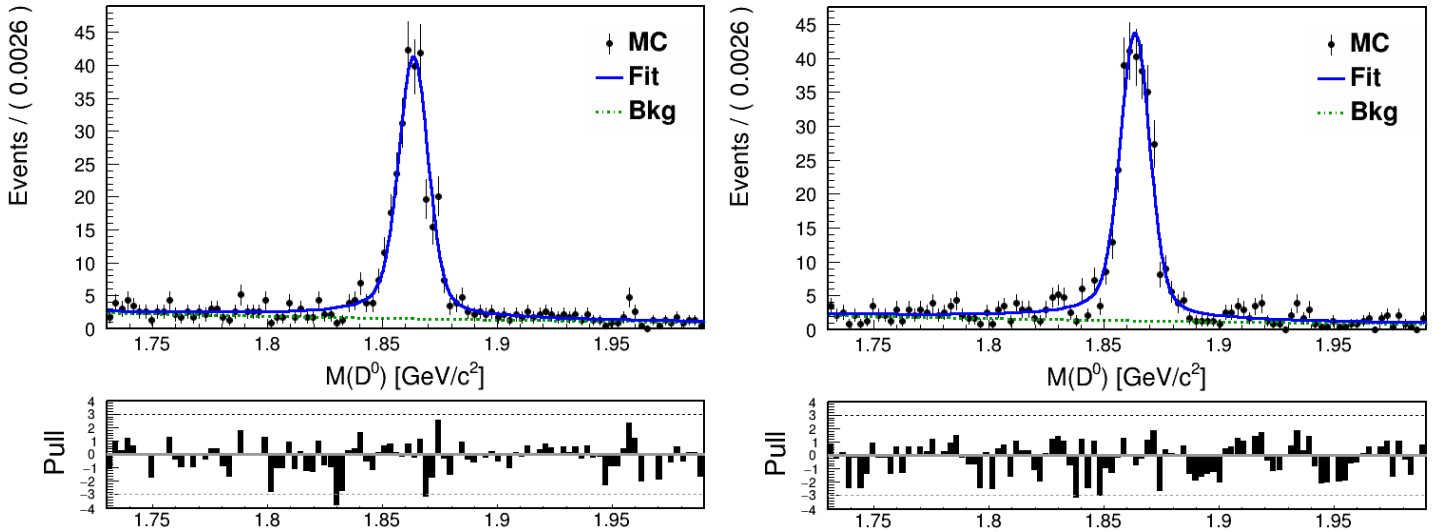
Only stats. uncertainty

$A_{cp,raw}(D^0, \bar{D}^0) = (2.010 \pm 1.178)\%$, $N_{total}(D^0, \bar{D}^0) = 3789 \pm 45$

$D^0 \to \eta\eta$

- **Arbitrary tight cuts(to do fit firstly), scaled down to 427/fb**

$D^0 \to (\eta \to \pi^+\pi^-\pi^0)(\eta \to \pi^+\pi^-\pi^0)$ $\quad$ $\bar{D}^0 \to (\eta \to \pi^+\pi^-\pi^0)(\eta \to \pi^+\pi^-\pi^0)$



Only stats. uncertainty

$A_{cp,raw}(D^0, \bar{D}^0)$ = (-3.174 ± 2.933)%, $N_{total}(D^0, \bar{D}^0)$ = 667 ± 20

Backup