Flavor physics channels

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	LHCb ($6fb^{-1}$)	LHCb ($300fb^{-1}$)	CEPC (pi-tagged)
D0	$2.8x10^{13}$	$1.4x10^{15}$	$8.3x10^{11}$ ($3.1x10^{11}$)
D0 -> K K D0 -> pi pi D0 -> pi pi pi0 D0 -> K pi pi0	$1.14x10^{11}$ $4x10^{10}$ $4x10^{11}$ $4x10^{12}$	$5.7x10^{12}$ $2x10^{12}$ $2x10^{13}$ $2x10^{13}$	$3.4x10^{9}$ ($1.26x10^{9}$) $1.2x10^{9}$ ($4.4x10^{8}$) $1.2x10^{10}$ ($4.4x10^{9}$) $1.2x10^{11}$ ($4.4x10^{10}$)
Reconstructed D0 -> K K Reconstructed D0 -> pi pi Reconstructed D0 -> pi pi pi0 Reconstructed D0 -> K pi pi0	$5.3x10^{7}$ $1.7x10^{7}$ $(1.7+0.8)x10^{6}$ * $(1.4+0.5)x10^{7}$ **	$2.6x10^{9}$ $8x10^{8}$ $1.3x10^{8}$ $1x10^{9}$	

*Purity for resolved (merged) pi0 sample: 81% (91%)
**Purity for resolved (merged) pi0 sample: 94% (97%)

- MC Truth decays using 2700 Z -> qq events:

D0 -> K K	4
D0 -> pi pi	1
D0 -> pi pi pi0	12
D0 -> K pi pi0	108

- At MC Truth level, decay chain can be reconstructed, but the PFO – MCTruth matching is missing
- In order to reconstruct a flavor physics decay event, we need:
  - Decay vertex
  - PID of each track
  - Momentum of each track
  - Calorimeter (if neutral)