Lab meeting

Yonsei University

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Summarized status

- MC15 run dependent signal MC / control sample generation were requested
  => including on resonance / off resonance / 5S_scan …

- Personal skim on MC 15 run dependent generic background samples is running on grid
  => only 4S on resonance sample
  => also need to skim on other samples(4S_offres, 5S_scan…) in future
      (about 10% size compared to 4S sample)
  => MC15 run dependent 4S sample total size $\mathcal{L}_{int} = 1458.959\ fb^{-1}$
  => done & downloaded
  => need to modify code to use run dependent samples

- Uploaded Belle II note on Belle II publish DB server

MC	/belle/collection/MC/MC15rd_uubar_exp20_bucket26_v1	Collection MC15rd for uubar - 4S - exp20 bucket26	14.96	232	23724777	mc	4S
MC	/belle/collection/MC/MC15rd_ddbar_exp20_bucket26_v1	Collection MC15rd for ddbar - 4S - exp20 bucket26	14.96	189	5927560	mc	4S
MC	/belle/collection/MC/MC15rd_ccbar_exp20_bucket26_v1	Collection MC15rd for ccbar - 4S - exp20 bucket26	14.96	232	19440120	mc	4S
MC	/belle/collection/MC/MC15rd_ssbar_exp20_bucket26_v1	Collection MC15rd for ssbar - 4S - exp20 bucket26	14.96	190	5420290	mc	4S
MC	/belle/collection/MC/MC15rd_taupair_exp20_bucket26_v1	Collection MC15rd for taupair - 4S - exp20 bucket26	14.96	195	13745167	mc	4S
MC	/belle/collection/MC/MC15rd_charged_exp20_bucket26_v1	Collection MC15rd for charged - 4S - exp20 bucket26	14.96	205	8076504	mc	4S
MC	/belle/collection/MC/MC15rd_mixed_exp20_bucket26_v1	Collection MC15rd for mixed - 4S - exp20 bucket26	14.96	204	7627799	mc	4S
MC	/belle/collection/MC/MC15rd_mumu_exp20_bucket26_v1	Collection MC15rd for mumu - 4S - exp20 bucket26	14.96	191	17170271	mc	4S
MC	/belle/collection/MC/MC15rd_gg_exp20_bucket26_v1	Collection MC15rd for gg - 4S - exp20 bucket26	7.48	221	26540700	mc	4S
MC	/belle/collection/MC/MC15rd_ee_exp20_bucket26_v1	Collection MC15rd for ee - 4S - exp20 bucket26	0.374	258	27752539	mc	4S
MC	/belle/collection/MC/MC15rd_eeee_exp20_bucket26_v1	Collection MC15rd for eeee - 4S - exp20 bucket26	3.74	256	147885042	mc	4S
MC	/belle/collection/MC/MC15rd_eemumu_exp20_bucket26_v1	Collection MC15rd for eemumu - 4S - exp20 bucket26	3.74	238	70408918	mc	4S
MC	/belle/collection/MC/MC15rd_llXX_exp20_bucket26_v1	Collection MC15rd for llXX - 4S - exp20 bucket26	3.74	190	7498328	mc	4S
MC	/belle/collection/MC/MC15rd_hhISR_exp20_bucket26_v1	Collection MC15rd for hhISR - 4S - exp20 bucket26	3.74	188	806237	mc	4S
MC	/belle/collection/MC/MC15rd_uubar_exp20-26_4S_v2	Collection MC15rd for uubar - 4S - exp20-26	699.235	5415	1109137191	mc	4S
MC	/belle/collection/MC/MC15rd_ddbar_exp20-26_4S_v2	Collection MC15rd for ddbar - 4S - exp20-26	699.235	2688	277108958	mc	4S
MC	/belle/collection/MC/MC15rd_ssbar_exp20-26_4S_v2	Collection MC15rd for ssbar - 4S - exp20-26	699.235	2658	253378872	mc	4S
MC	/belle/collection/MC/MC15rd_ccbar_exp20-26_4S_v2	Collection MC15rd for ccbar - 4S - exp20-26	699.235	5534	908864195	mc	4S
MC	/belle/collection/MC/MC15rd_taupair_exp20-26_4S_v2	Collection MC15rd for taupair - 4S - exp20-26	699.235	2832	642591550	mc	4S
MC	/belle/collection/MC/MC15rd_charged_exp20-26_4S_v2	Collection MC15rd for charged - 4S - exp20-26	699.235	3522	377573258	mc	4S
MC	/belle/collection/MC/MC15rd_mixed_exp20-26_4S_v2	Collection MC15rd for mixed - 4S - exp20-26	699.235	3461	356596504	mc	4S
MC	/belle/collection/MC/MC15rd_ee_exp20-26_4S_v2	Collection MC15rd for ee - 4S - exp20-26	17.481	5797	1297156799	mc	4S

Search for D^0 decays to invisible final states at Belle II experiment

Sumitted to PubDB: 2025-01-17

Category: Physics / performance note, Visibility: `Internal`

Tags: -

Authors	Chan ho Kim, Youngjoon Kwon
Date	Jan. 17, 2025
Working group	physics-PHYSICS_CHARM
Belle II Number	BELLE2-NOTE-PH-2025-003
Analysis	Study of D^0 decays to invisible at Belle II
Paper	Start publication process ⓘ Only conveners may initiate a publication process

Files

Upload

⤓ BELLE2-NOTE-PH-2025-003.pdf (versions: 1)
latest upload: 2025-01-17

Rough plan to get systematic uncertainty from charm tagger

- Check on MC/Data ratio about exclusive D for major branching fraction channels including control sample
  - $K^-\pi^+$
  - $K_S^0\pi^0$
  - $K^-\pi^+\pi^0$
  - $K^-\pi^+\pi^-\pi^+$
  - $\pi^+\pi^-\pi^0$
  - $h^-l^+\nu, \ (h=K,\pi \ \& \ l=e,\mu)$
  - …
    => not yet determined about how many channels and which decay will be used
- Check the ratio tendency on many channels
- If it is about 1 uniformly, then just use one channels
  - $Br(D^0 \to f) = \dfrac{N^{excl}}{N^{incl}*\epsilon_{sig}} \Rightarrow Br(D^0 \to f) = \dfrac{N^{excl}}{N^{incl}*\epsilon_{sig}*R_{\frac{Data}{MC}}}$
- If not, the weighted sum of ratio will be used

- If run dependent reconstruction is done and if which D0 decay will be checked is determined, then will report on working group again and need to ask permission to check data