BESIII Oxford Group Meeting

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27th May 2021

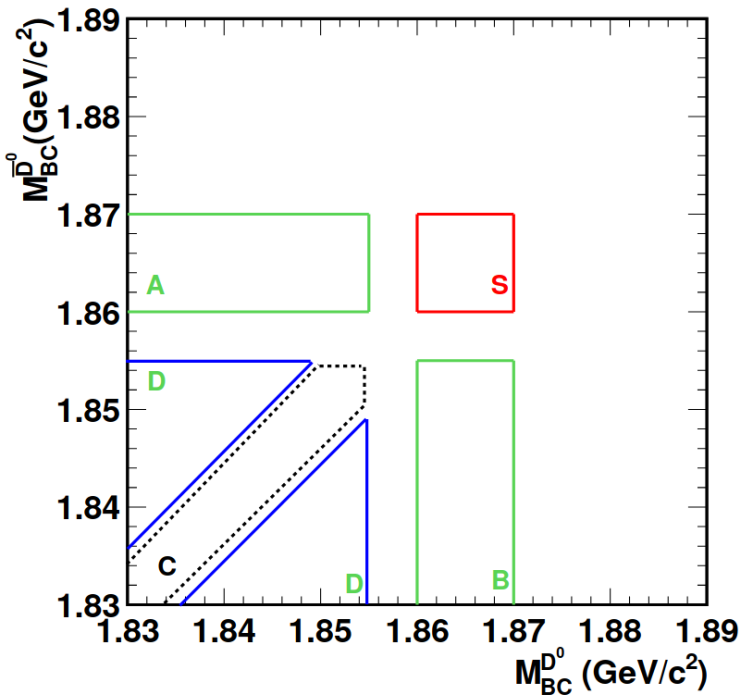
Introduction

- $K_S KK$ double tag yields for $\delta_D^{K\pi}$ measurement
- Previously:
  1. Selected $K_{S,L} KK$ events tagged with $K\pi$, $K\pi\pi^0$, $K\pi\pi\pi$ (and $Ke\nu$)
  2. Bin migration matrix and bin efficiencies from MC
- Today: Need help with peaking background subtraction

Fully reconstructed double tags

- $K_S KK$ vs $K\pi$, $K\pi\pi^0$, $K\pi\pi\pi$

- Count number of background events inside S from inclusive $D^0\bar{D}^0$ MC



$K\pi$ backgrounds

- Total data yield: 321.5
- Scale with MC luminosity: 6912.3

Background	Total	Bin 1	Bin 2	Bin -1	Bin -2
$K_S KK \to KK\pi\pi$	10	2	1	6	1
$K_S KK \to K_L KK$	5	2	0	3	0
Other	4	0	0	2	2

- How does $K_L \to K_S$ swap happen...?
- Can the MC be trusted?

$K\pi\pi^0$ backgrounds

- Total data yield: 584.5
- Scale with MC luminosity: 12742.1

Background	Total	Bin 1	Bin 2	Bin −1	Bin −2
$K_S KK \to KK\pi\pi$	16	9	1	5	1
$K\pi \to K\mu\nu_\mu$	8	1	2	2	3
$K_S KK \to K_L KK$	8	2	0	6	0
$K\pi\pi^0 \to K\pi\pi^0\pi^0$	6	2	2	1	1
$K\pi \to KK$	4	0	3	0	1
$K\pi \to Ke\nu_e$	3	0	2	0	1
Other	14	0	11	0	3

$K\pi\pi\pi$ backgrounds

- Total data yield: 399.6
- Scale with MC luminosity: 8711.3

Background	Total	Bin 1	Bin 2	Bin -1	Bin -2
$K\pi\pi\pi \to K_S K^+ \pi^-$	43	3	21	1	18
$K_S KK \to K_L KK$	9	1	0	8	0
$K_S KK \to KK\pi\pi$	9	4	1	3	1
$K\pi\pi\pi \to K\pi\pi^0\pi\pi$	6	0	1	2	3
Other	13	2	5	2	4

Next steps

- DCS correction?
- Finalize the final yields
- Propagate the errors