Study of $\Upsilon(1,2S) \to \Lambda\phi + X$ decay at Belle

Group meeting

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Preliminary Selection

$$\Upsilon(1,2S) \to \Lambda[\to p^+\pi^-]\phi[\to K^+K^-] + anything$$

Data samples

- **A** 5 fb **data sample collected at** $\Upsilon(1S)$ **peak** $\sqrt{s} = 9.46$ **GeV.**
- **A** 89 fb **data sample collected at** $\sqrt{s} = 10.52$ **GeV.**

MC simulation

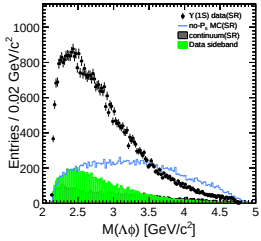
- 2×10^5 **no-**$\mathrm{P_s}$ **MC(PHSP MC)**

Selection Criteria

- PID selection
  - $\frac{\mathcal{L}(K^{\pm})}{\mathcal{L}(K^{\pm})+\mathcal{L}(\pi^{\pm})} > 0.9$ and $\frac{\mathcal{L}(K^{\pm})}{\mathcal{L}(K^{\pm})+\mathcal{L}(p)} > 0.9$
- Track selection
  - $dr < 0.2$ cm and $|dz| < 2.0$ cm and $|\Delta dr(K^{\pm})| < 0.2$ cm
- Λ MVA selection
  - $\mathrm{ksnbNoLamv} < -0.4$ and $\mathrm{ksnbV0Like} > 0.5$
- Λ mass window
  - $|M(p\pi) - 1.1156| < 3 \times 0.0008$ GeV$/c^2$
- ϕ mass window
  - $|M(K^+K^-) - 1.0196| < 3 \times 0.0019$ GeV$/c^2$
- Veto the background from $\Xi \to \Lambda\pi$

Preliminary results

No significant P_s signal may be found in the invariant mass distribution of $\Lambda\phi$ system



$\varepsilon = 18.7\%$ assumed by PHSP MC