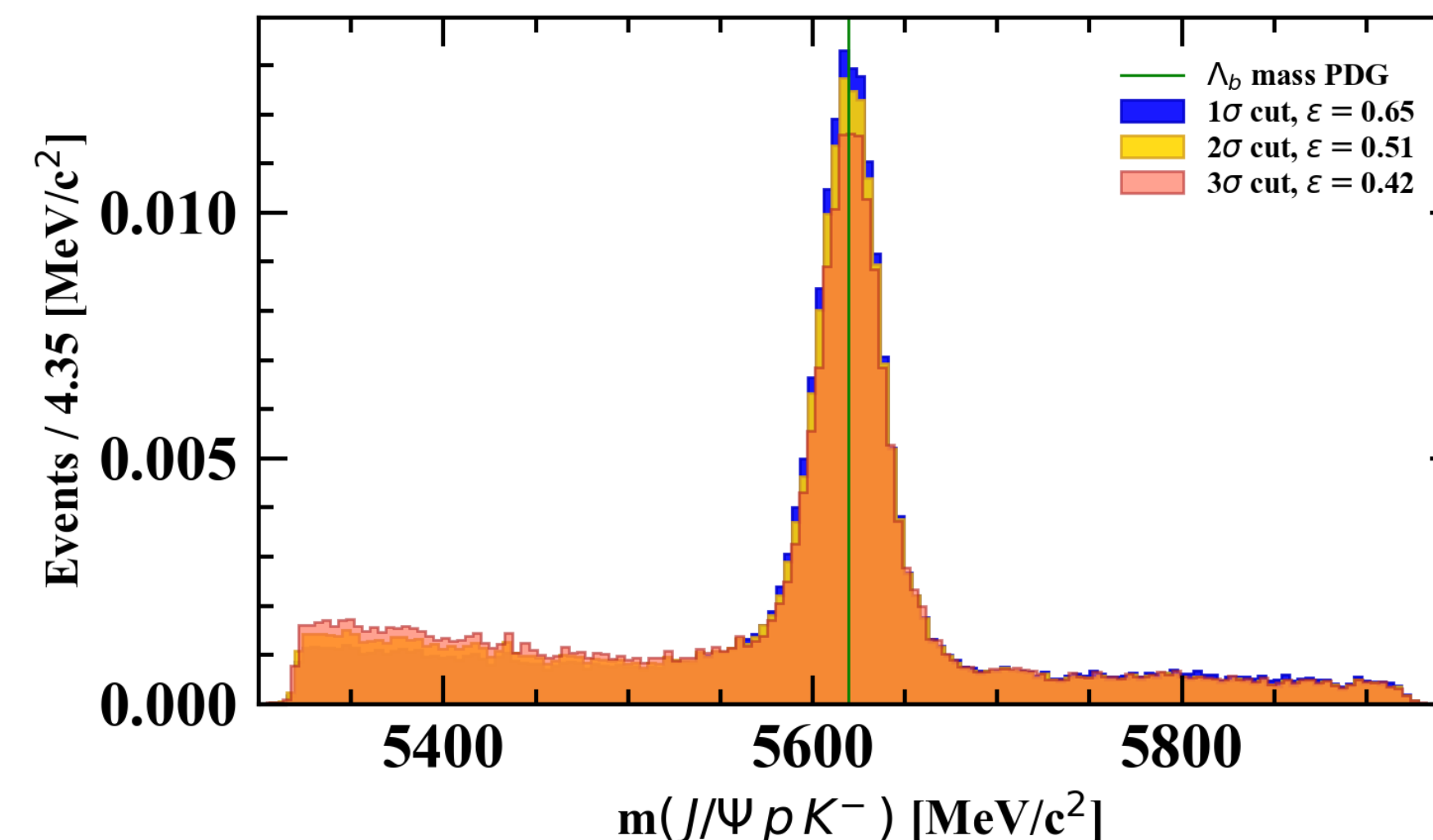


- Known **disagreement** between $\Lambda_b(P, P_T)$ **Data** and **MC** distributions
 - We extract the correction using as **control channel** $\Lambda_b^0 \rightarrow J/\Psi p K^-$ decays
 - **Trigger selection**: inspired by the latest Pentaquark analysis [\[PRL122\(2019\)222001\]](#)
 - **MVA selection**: XGBoost classifier (+KFoldCV) trained using PID variables (PIDCorr) and additional kinematic, topological ones to reject **MisID** and **combinatorial** backgrounds
- Signal (MC)**: region ± 40 MeV within Λ_b mass peak
- Background (Data)**: sidebands outside the region belonging to the Λ_b mass peak
- **Veto cuts on MisID background**
Cut around the reconstructed mass peak of the candidate, in the replaced mass hypothesis for:

- a) $\bar{B}_s^0 \rightarrow J/\Psi(\Phi \rightarrow K^+ K^-)$
- b) $B^0 \rightarrow J/\Psi \pi^+ K^-$
- c) $\bar{\Lambda}_b^0 \rightarrow J/\Psi \bar{p} K^+$



Λ_b KINEMATICS CORRECTION (II)

[Data/MC]

- We extract the correction using as **control channel** $\Lambda_b^0 \rightarrow J/\Psi p K^-$ decays: sWeights from unbinned ML fit to the Λ_b mass
- Dedicated study to **optimise** the (MC) **binning** in $\Lambda_b(P, P_T)$ for the evaluation of the correction

1. **Regular-sized** binning
2. **Rectangular** binning
3. **Adaptive** binning

