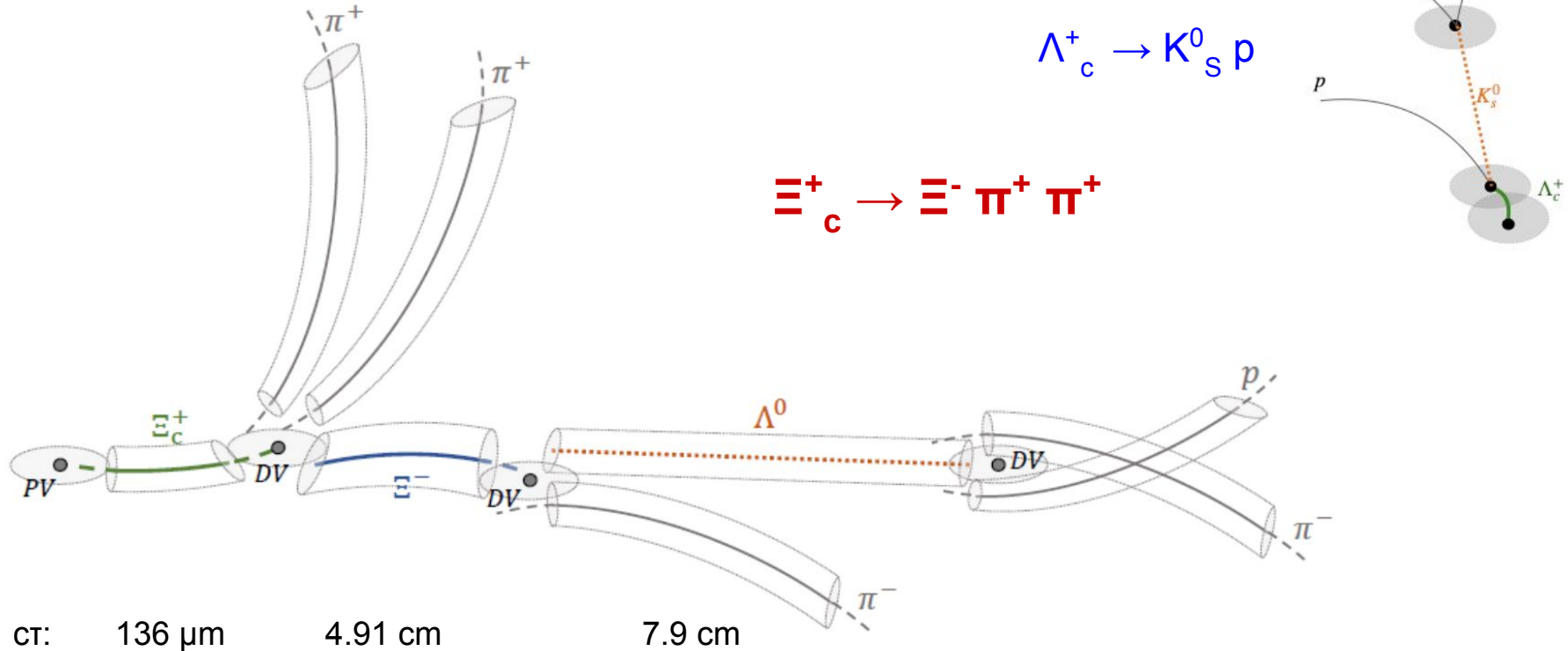
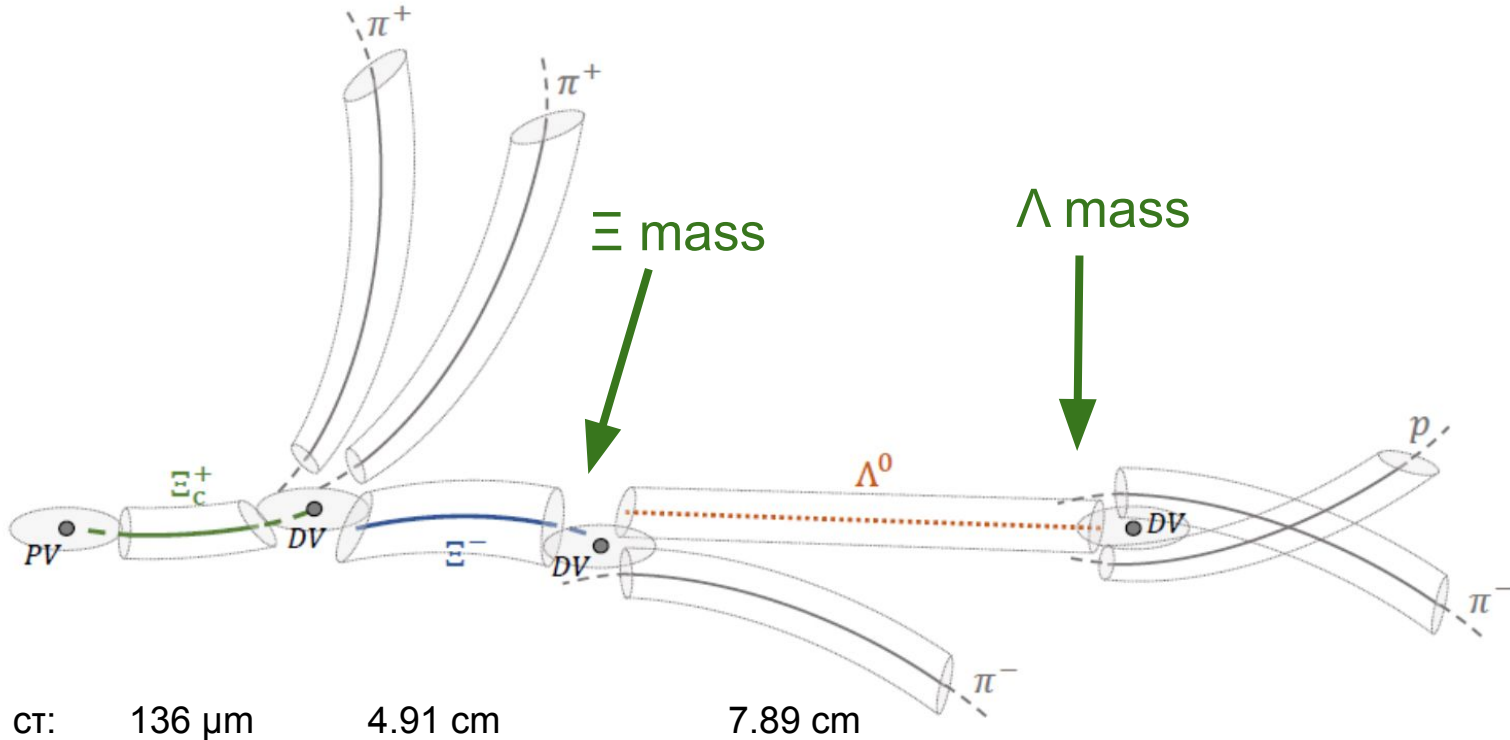


# ALICE: charmed baryon decays



ALICE:  $\Xi_c^+ \rightarrow \Xi^- \pi^+ \pi^+$

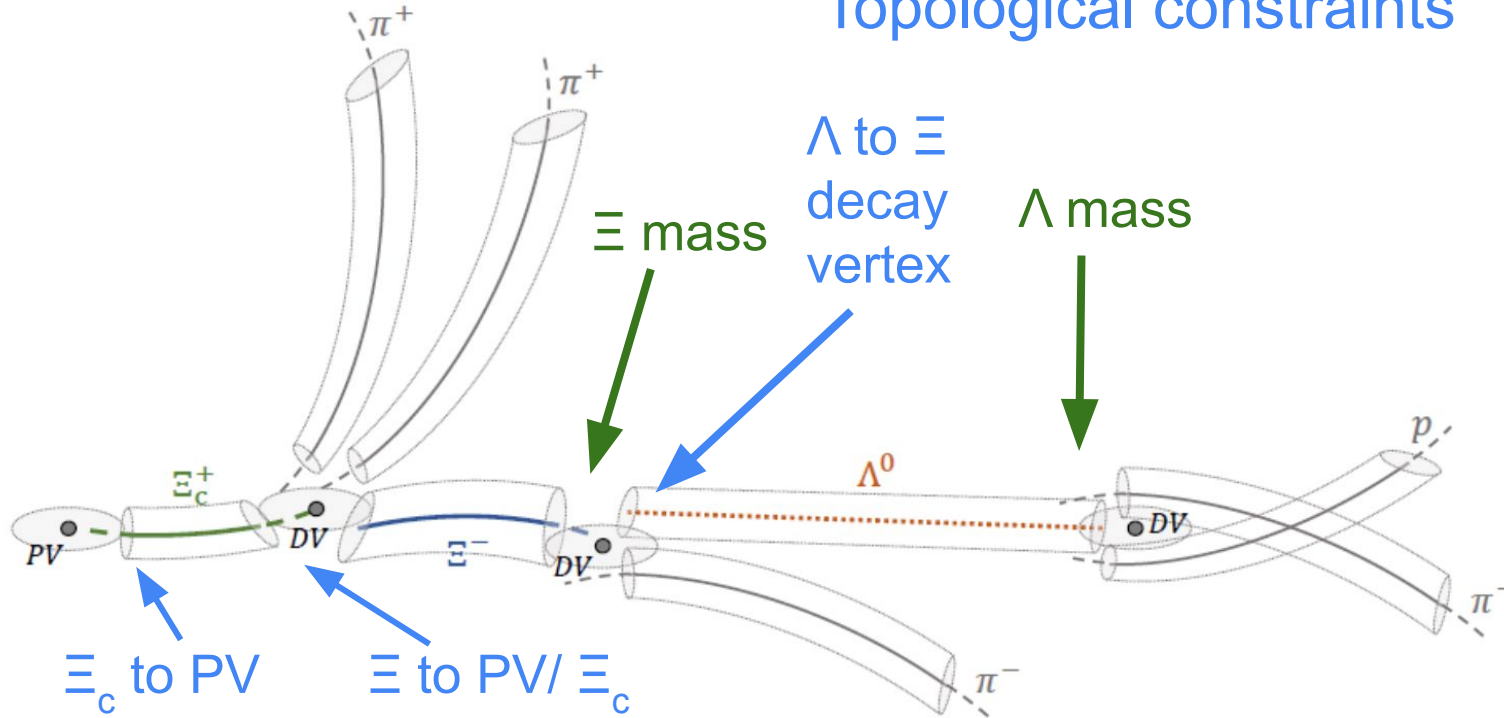
Mass constraints



ALICE:  $\Xi_c^+ \rightarrow \Xi^- \pi^+ \pi^+$

Mass constraints

Topological constraints



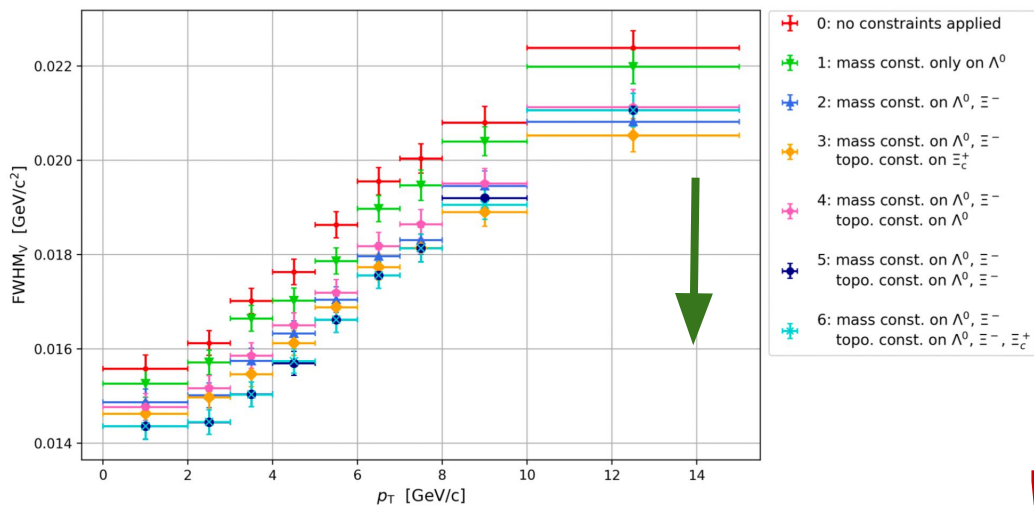
ct: 136  $\mu\text{m}$

4.91 cm

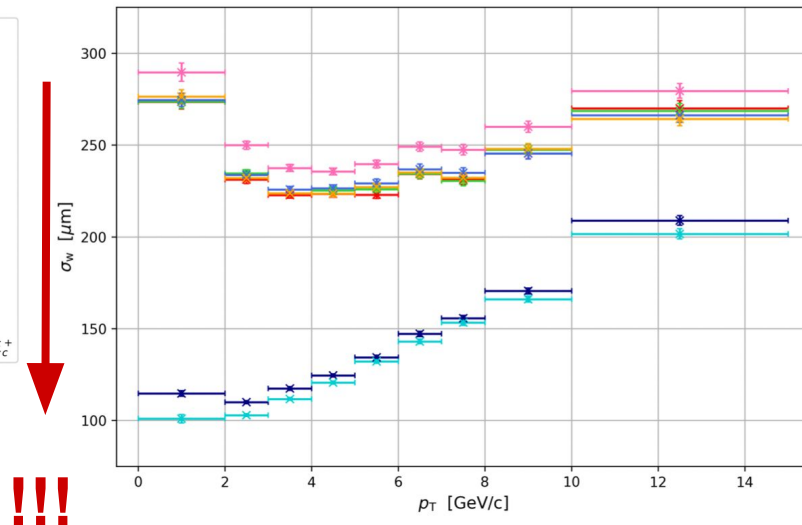
7.89 cm

ALICE:  $\Xi_c^+ \rightarrow \Xi^- \pi^+ \pi^+$

## Mass resolution

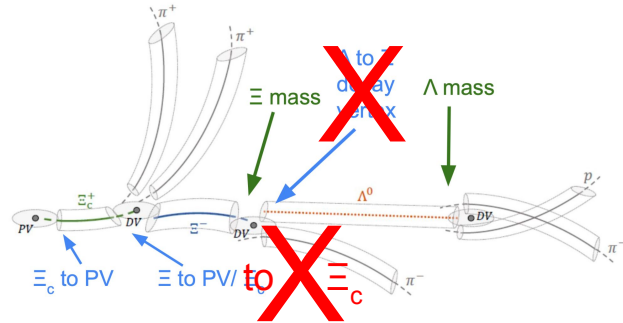


## Secondary vertex resolution (x)

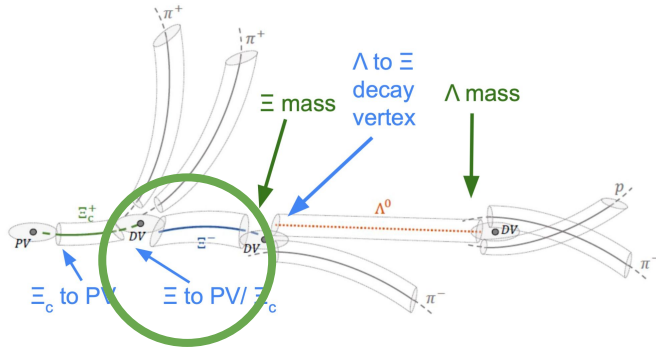


ALICE:  $\Xi_c^+ \rightarrow \Xi^- \pi^+ \pi^+$

## Lessons learnt



Topological constraints (SetProductionVertex) to a vertex with poor resolution do not help, might even degrade the precision



Topological constraints for long-lived particles to precise vertices (PV) help very much !

ALICE:  $\Xi_c^+ \rightarrow \Xi^- \pi^+ \pi^+$

Next steps

- Repeat checks with Run 3 MC
- Perform analysis in Run 3 pp data
- Goal 1: extend  $p_T$  reach to 0 GeV/c (very high background)
- Goal 2: perform **analysis in Pb-Pb data**
- Goal 3: feasibility study for
 
$$\begin{aligned} \Xi_{cc}^{++} &\rightarrow \Xi_c^+ \pi^+ \rightarrow \Xi^- \pi^+ \pi^+ \pi^+ \\ \Xi_{cc}^{++} &\rightarrow \Xi_c^+ \pi^+ \rightarrow p K^- \pi^+ \pi^+ \\ \Xi_{cc}^{++} &\rightarrow \Lambda_c^+ K^- \pi^+ \pi^+ \end{aligned}$$

