

# **HANUL Meeting**

**June 12<sup>th</sup>, 2018**

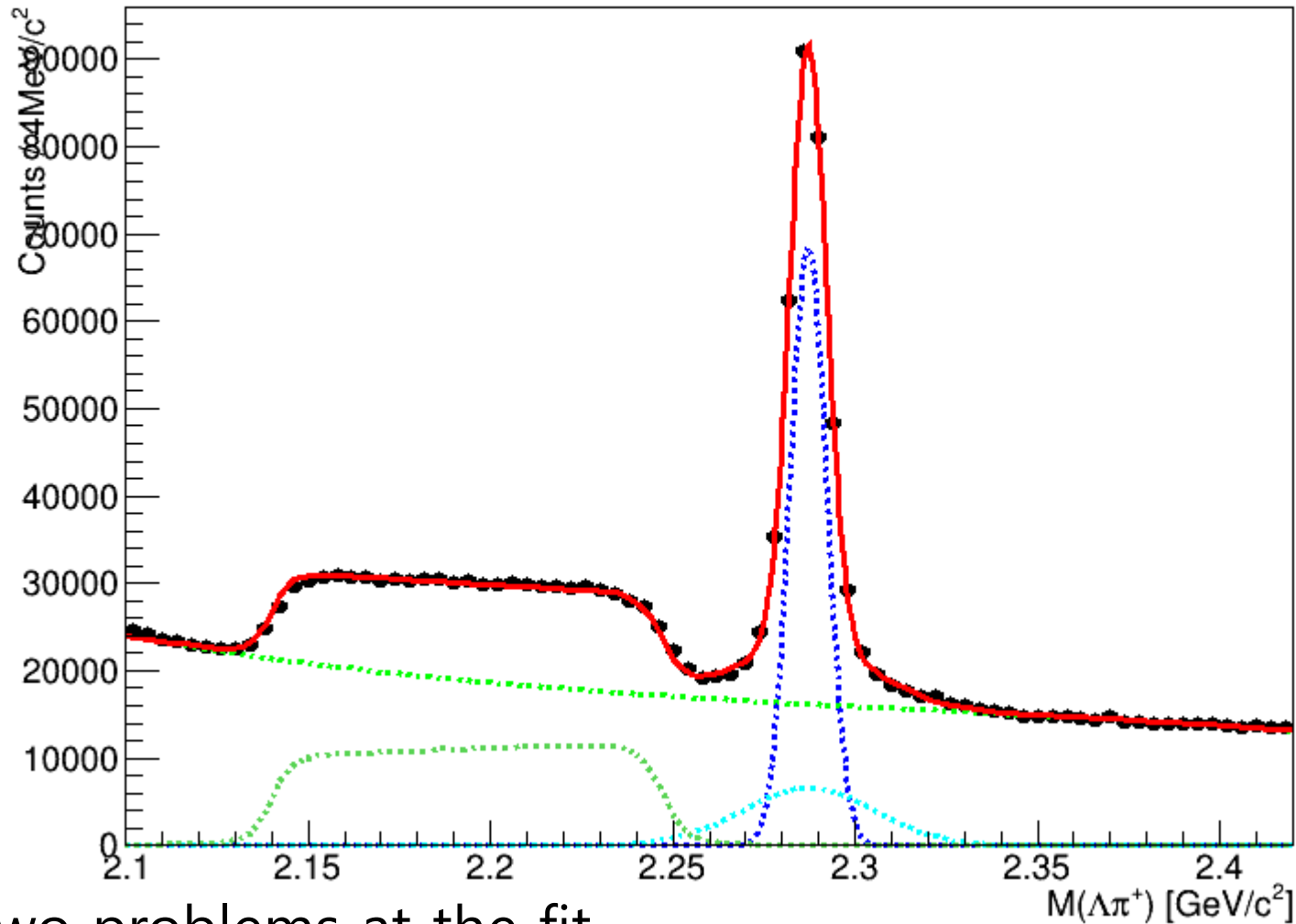
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# Optimization

- Typical cuts: Previous Belle analysis
- Optimization: Figure of merit study,  $FoM = \sqrt{S}/(S + B)$

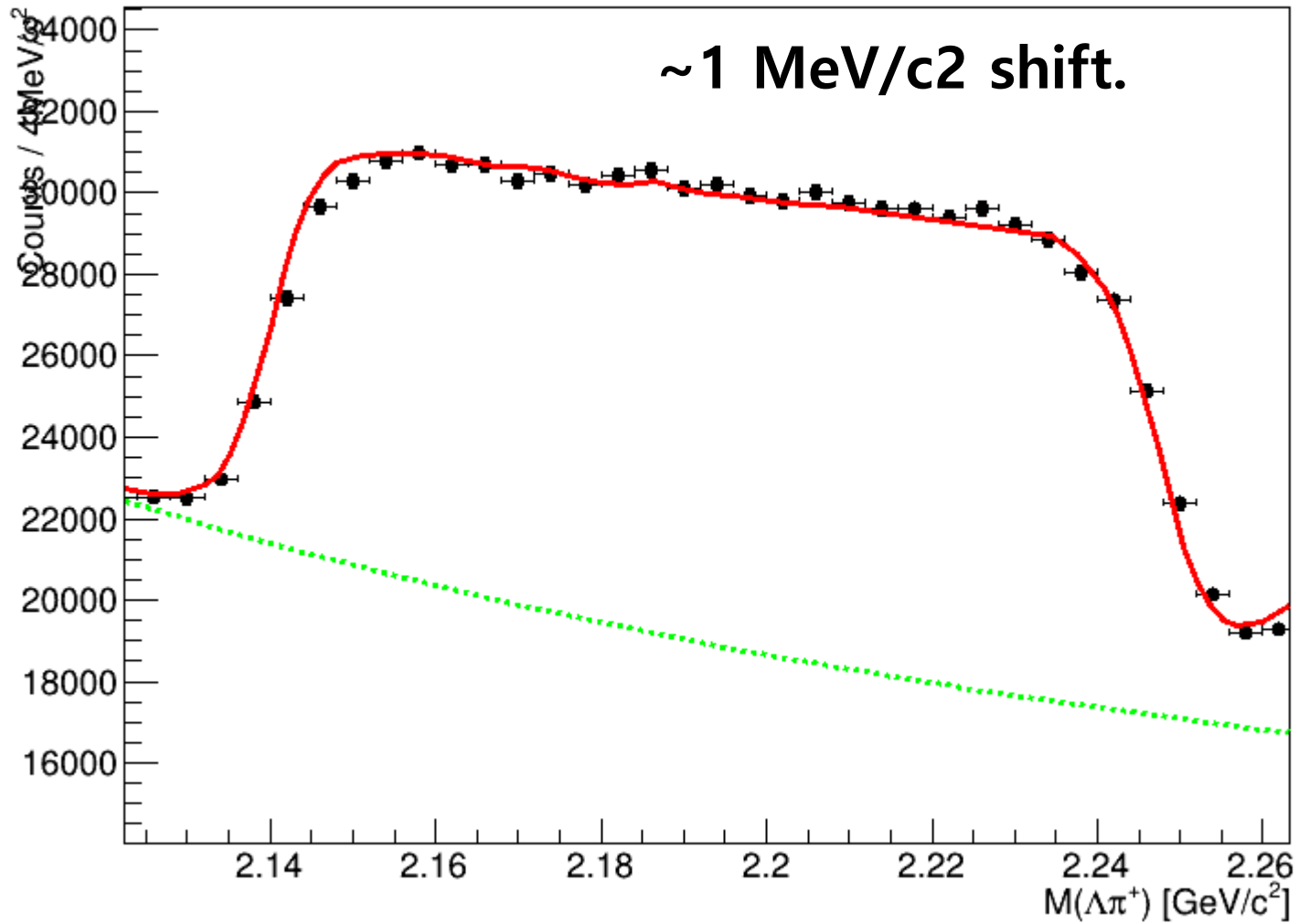
Selection Type	Quantity	Typical Condition	Optimized Condition
$\Lambda$ Selection			
	goodLambda	1	-
	$\mathcal{R}_p(p \pi)$	$> 0.6$	-
	$\mathcal{R}_p(p K)$	$> 0.6$	-
	$\mathcal{R}_\pi(\pi p)$	-	-
	$\mathcal{R}_\pi(\pi K)$	-	-
	$\chi^2$ of $\Lambda$ vertex fit	-	-
	Selected mass range	$\pm 1.5 \text{ MeV}/c^2$	-
$\pi^+$ Selection			
	$\mathcal{R}(\pi K)$	$> 0.20$	-
	$\mathcal{R}(\pi p)$	$> 0.20$	-
	$\mathcal{R}(e)$	-	-
Number of SVD hits for all particles			
	$r\phi$ -layer	-	-
	$z$ -layer	-	-
Scaled Momentum of $\Lambda_c^+$			
	$x_p$	$> 0.5$	-
$\chi^2$ of $\Lambda_c^+$ vertex fit			
	$\chi^2$	$< 30$	-

## ■ Invariant mass distribution with the typical cuts



→ Two problems at the fit.

→ Sig0 pi+ background



→ Signal PDF (two Gaussians).  
Second Gaussian width problem.

