

HANUL Meeting

2018. 05. 30

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Charge combinations

$$1. \Lambda_c^+ \rightarrow \Sigma(1670)^+\pi^0 \rightarrow \Lambda(1405)\pi^+\pi^0$$

$$1\text{-a. } \Lambda_c^+ \rightarrow \Sigma(1670)^+\pi^0 \rightarrow \Lambda(1405)\pi^+\pi^0 \rightarrow \Sigma^+\pi^-\pi^+\pi^0$$

$$1\text{-b. } \Lambda_c^+ \rightarrow \Sigma(1670)^+\pi^0 \rightarrow \Lambda(1405)\pi^+\pi^0 \rightarrow \Sigma^0\pi^0\pi^+\pi^0$$

$$\cancel{1\text{-c. } \Lambda_c^+ \rightarrow \Sigma(1670)^+\pi^0 \rightarrow \Lambda(1405)\pi^+\pi^0 \rightarrow \Sigma^-\pi^+\pi^+\pi^0}$$

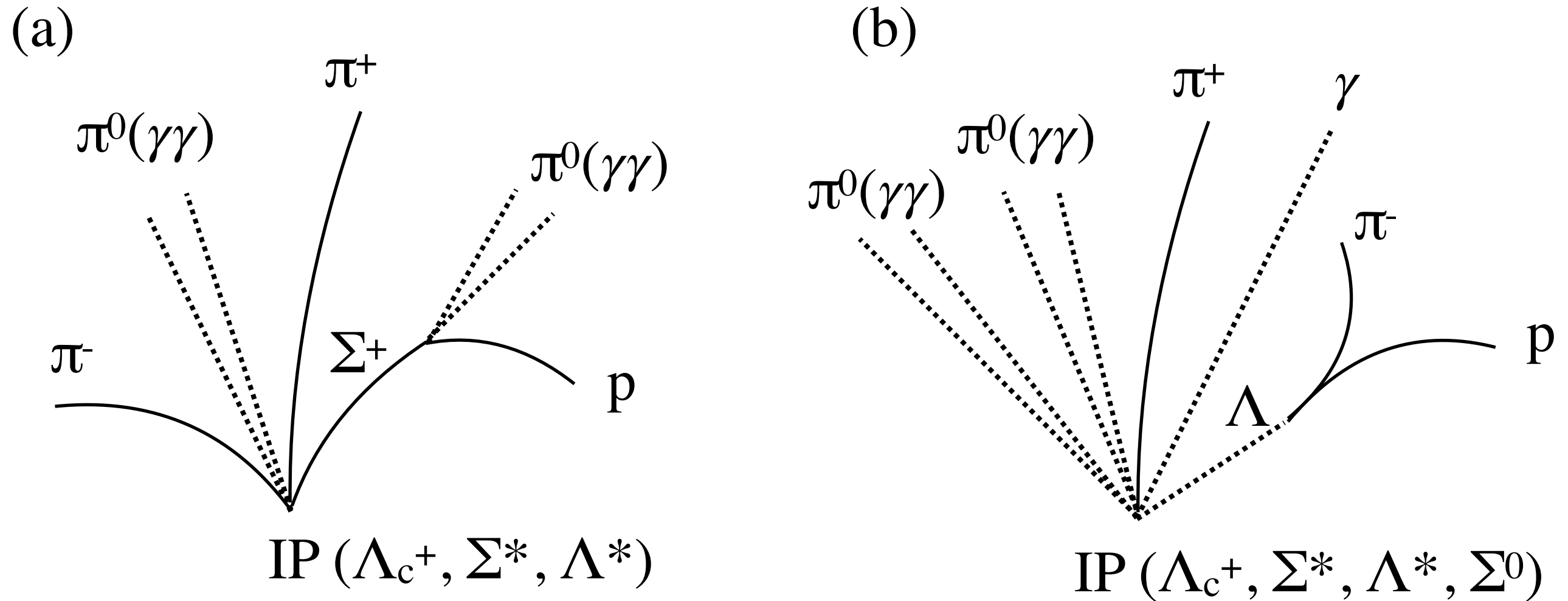
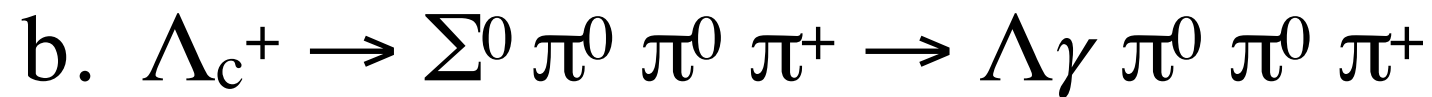
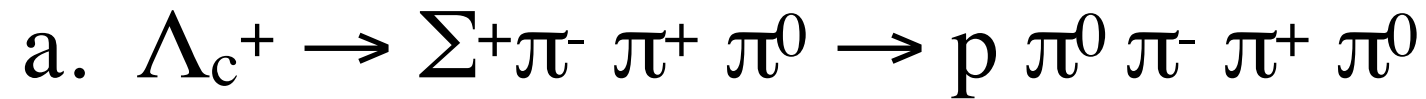
$$2. \Lambda_c^+ \rightarrow \Sigma(1670)^0\pi^+ \rightarrow \Lambda(1405)\pi^0\pi^+$$

$$2\text{-a. } \Lambda_c^+ \rightarrow \Sigma(1670)^+\pi^0 \rightarrow \Lambda(1405)\pi^0\pi^+ \rightarrow \Sigma^+\pi^-\pi^0\pi^+$$

$$2\text{-b. } \Lambda_c^+ \rightarrow \Sigma(1670)^+\pi^0 \rightarrow \Lambda(1405)\pi^0\pi^+ \rightarrow \Sigma^0\pi^0\pi^0\pi^+$$

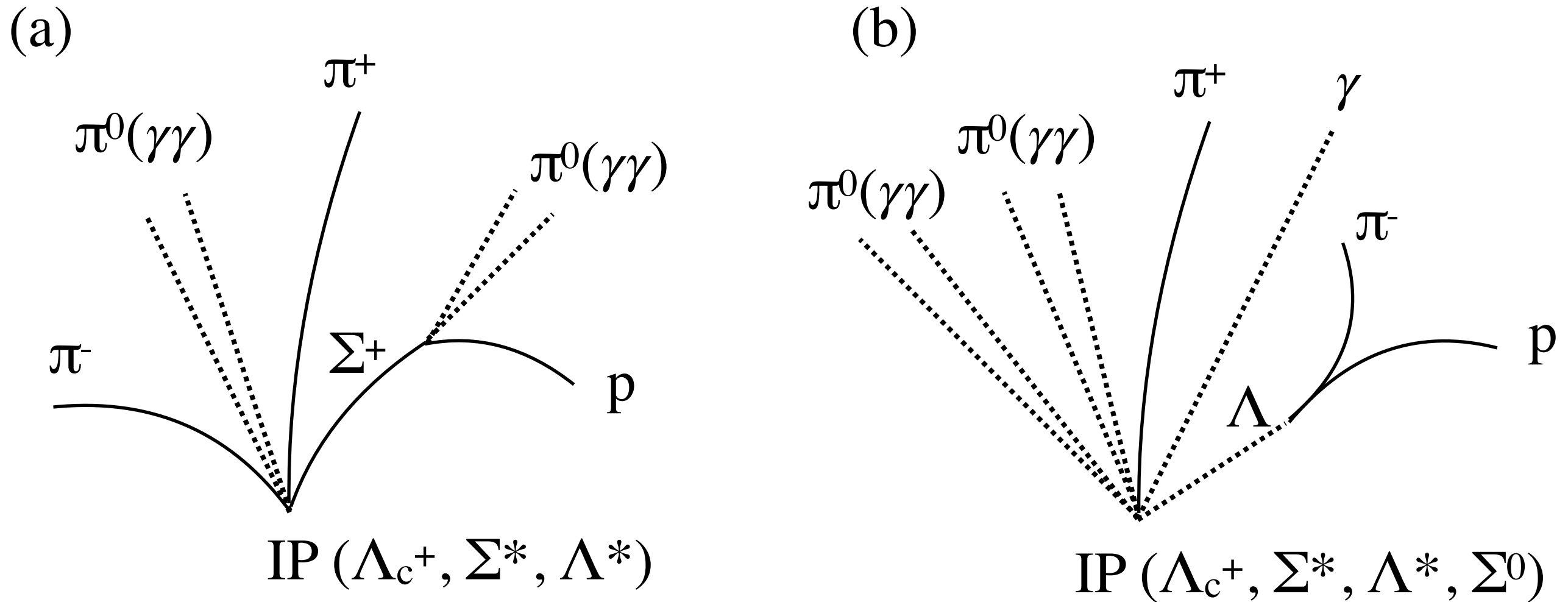
$$\cancel{2\text{-c. } \Lambda_c^+ \rightarrow \Sigma(1670)^+\pi^0 \rightarrow \Lambda(1405)\pi^0\pi^+ \rightarrow \Sigma^-\pi^+\pi^0\pi^+}$$

Λ_c^+ Decay tracks



Λ_c^+ Decay tracks

	Λ_c^+	$\Sigma(1670)$	$\Lambda(1405)$	Σ^0	π^0
$c\tau$ (m)	60 μm	3.3 fm (60 MeV)	3.9 fm (50.5 MeV)	22 pm	26 nm



Reconstruction

a. $\Lambda_c^+ \rightarrow \Sigma^+ \pi^- \pi^+ \pi^0 \rightarrow p \pi^0 \pi^- \pi^+ \pi^0$

b. $\Lambda_c^+ \rightarrow \Sigma^0 \pi^0 \pi^0 \pi^+ \rightarrow \Lambda \gamma \pi^0 \pi^0 \pi^+$

Plan - step

1. $\Sigma^+(p \pi^0)$ recon

vertex point : p production point

2. $\Lambda_c^+ (\Sigma^+ \pi^0 \pi^- \pi^+)$ recon

vertex point : IP

3. Λ_c^+ mass window cut

back up