Normalized Yields for $\Xi(1530)$

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Outline

- Sp17, Sp18 and Fa 18 Dataset
- Sp17, Sp18, Fa 18 and 2020 Dataset
- Conclusions

Reaction and Decay Chain

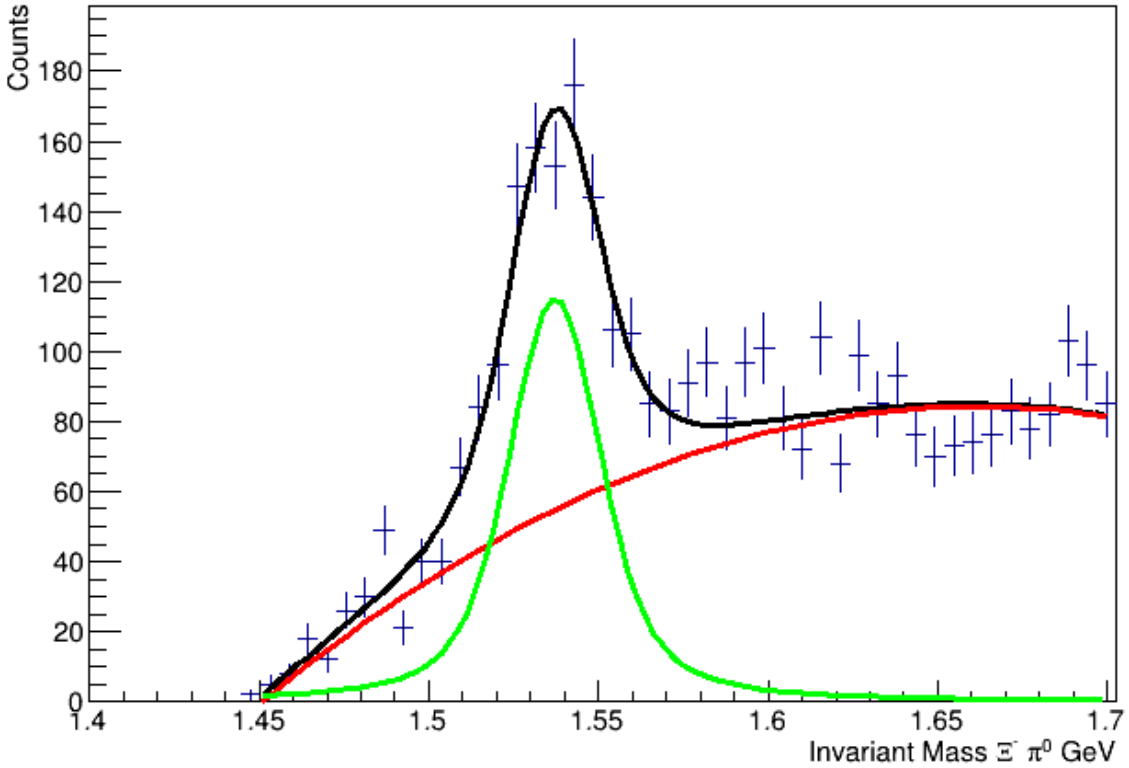
$$\gamma p \rightarrow K^+ K^+ \Xi^{-*}$$
$$\Xi^{-*} \rightarrow \Xi^- \pi^0$$
$$\Xi^- \rightarrow \Lambda \pi^-$$
$$\Lambda \rightarrow p \pi^-$$

- The masses of Λ and π are constrained to the known masses in the kinematic fit.

Analysis Cuts

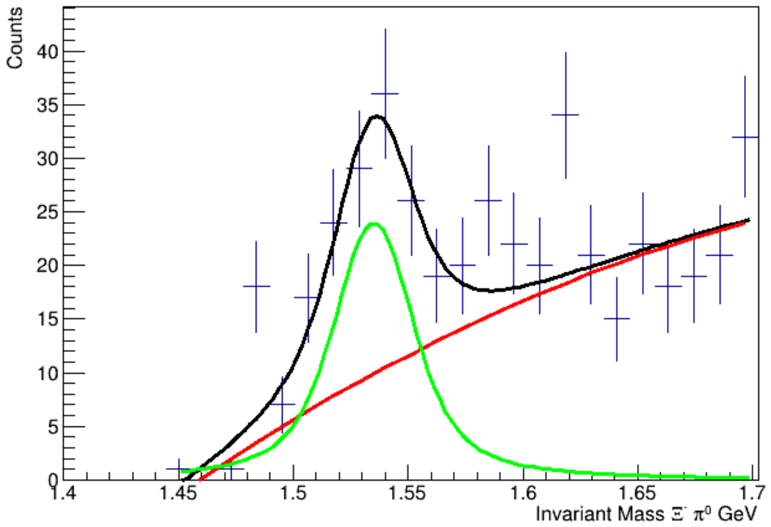
- Cl > 10^{-4}
- Invariant mass cut on the reconstructed ground state cascade $1.31 < IM(\Lambda\pi^{-}) < 1.34\ GeV$
- Removal of background K^{*} contribution

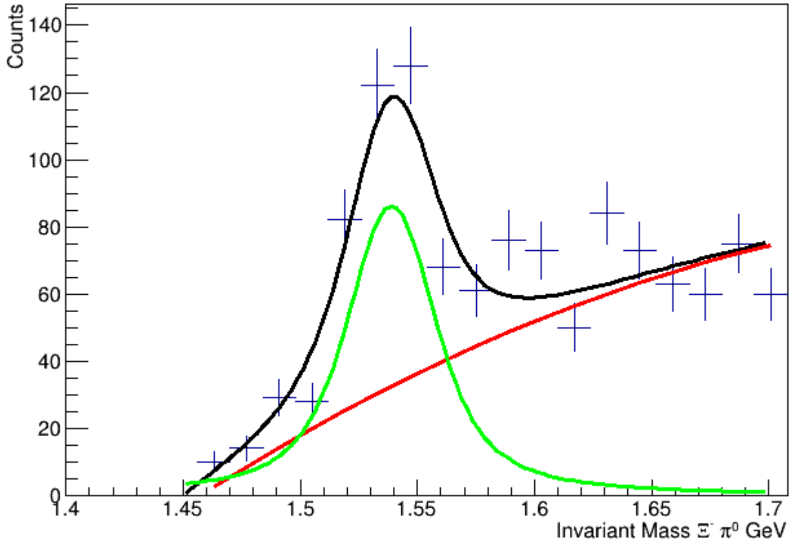
2017-2018 Fits

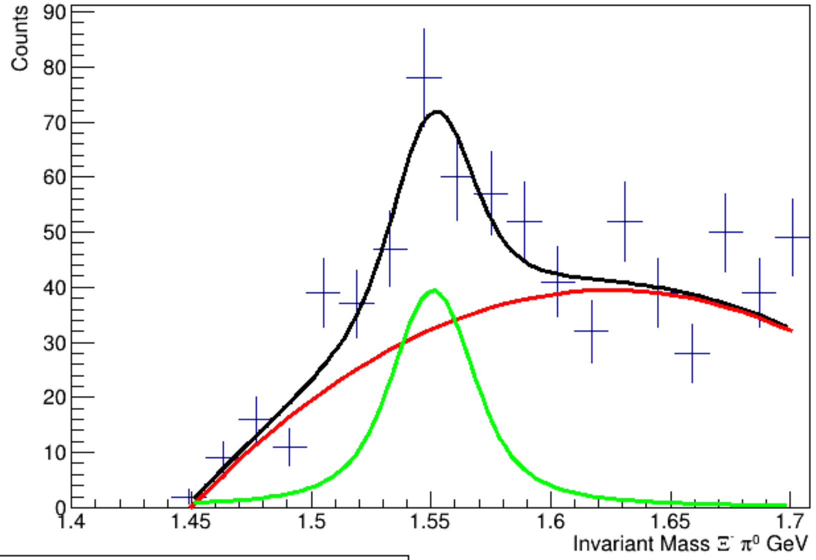


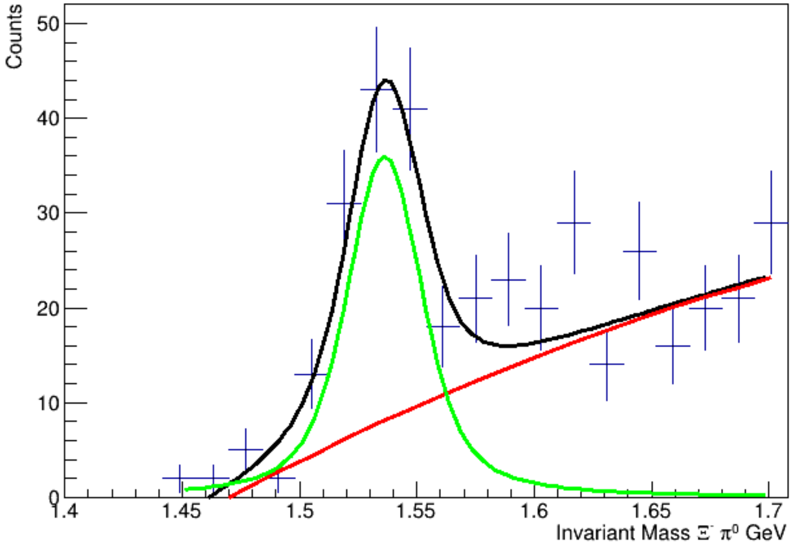
- Center = 1.537(9)
- Γ = 8(5) MeV
- σ = 10(1) MeV

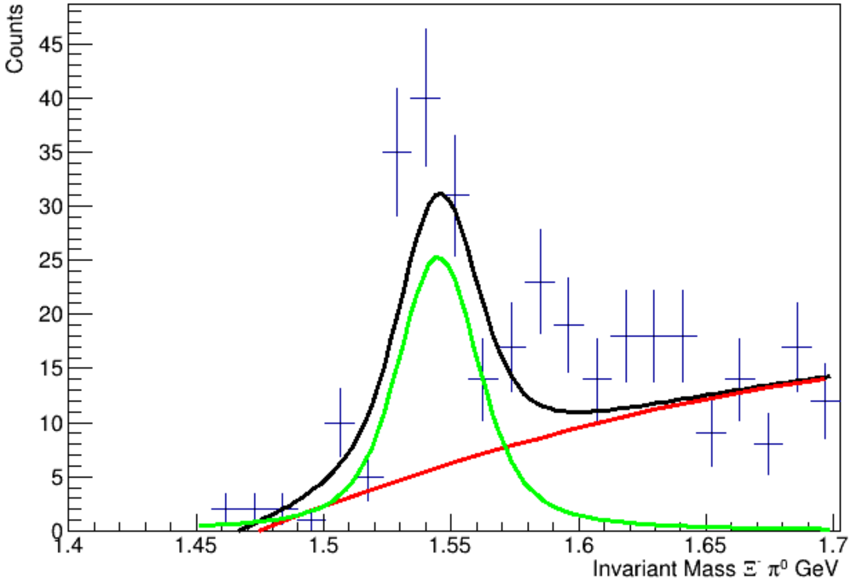
Sp17 and 18 Fits



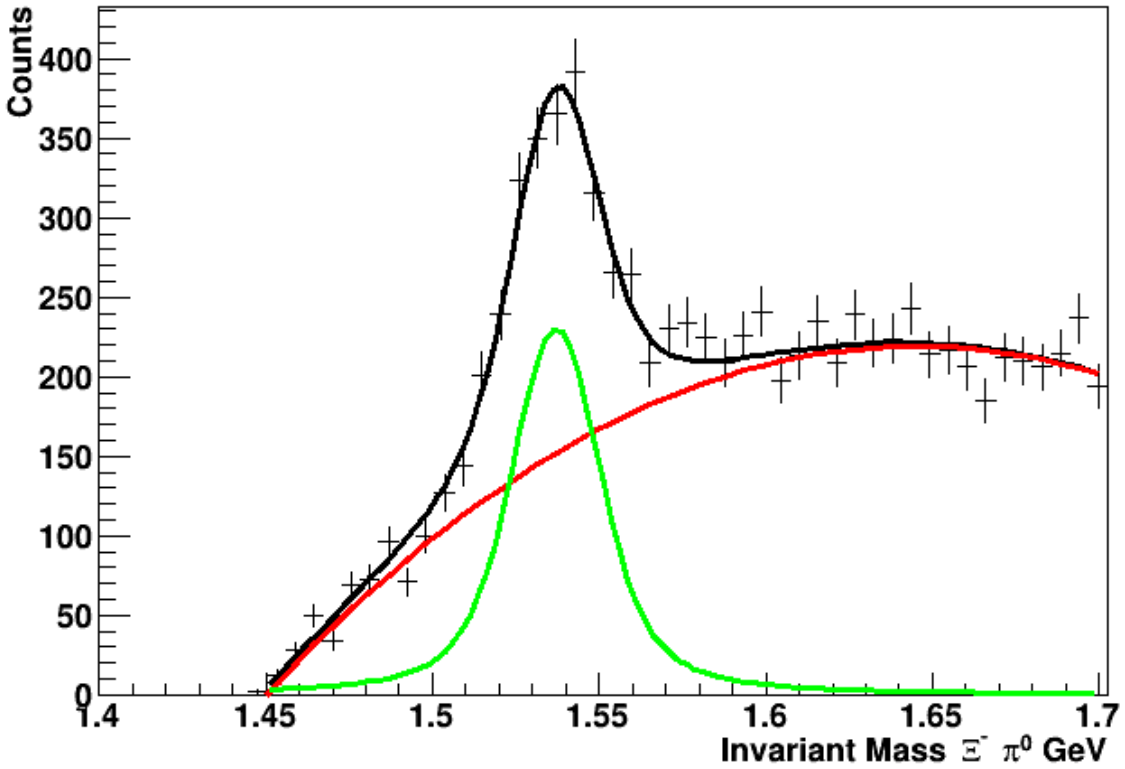






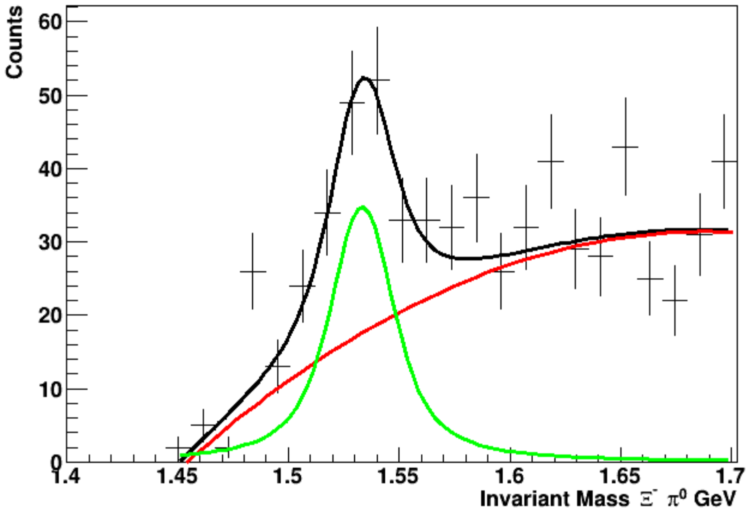


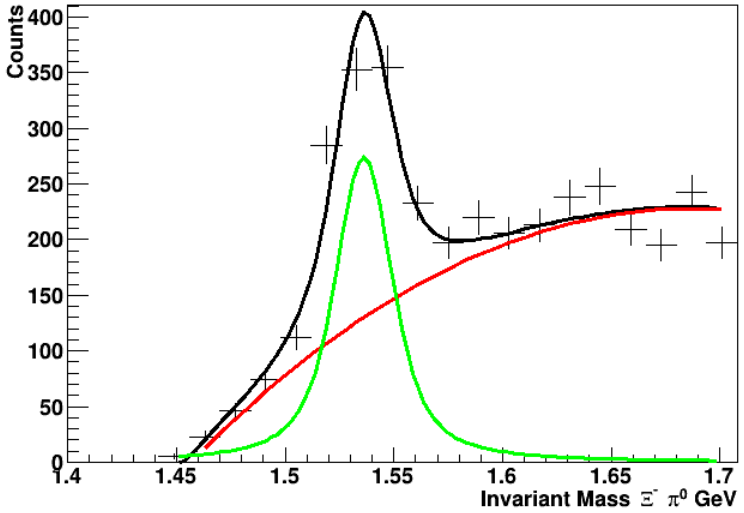
2017-2020 fits

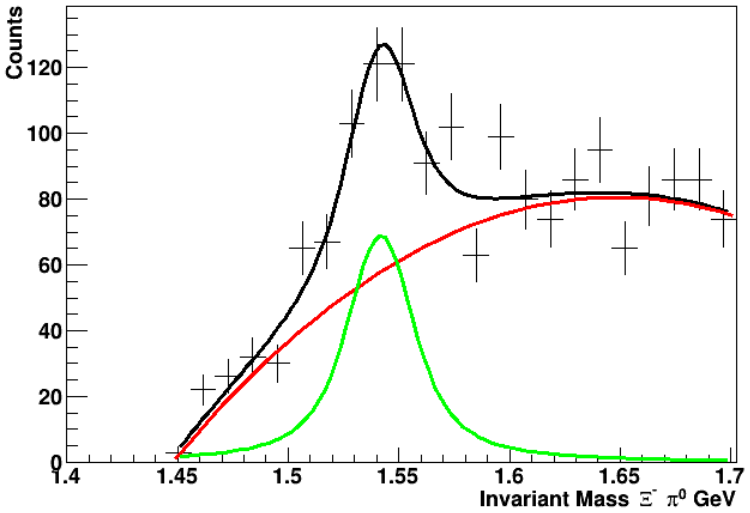


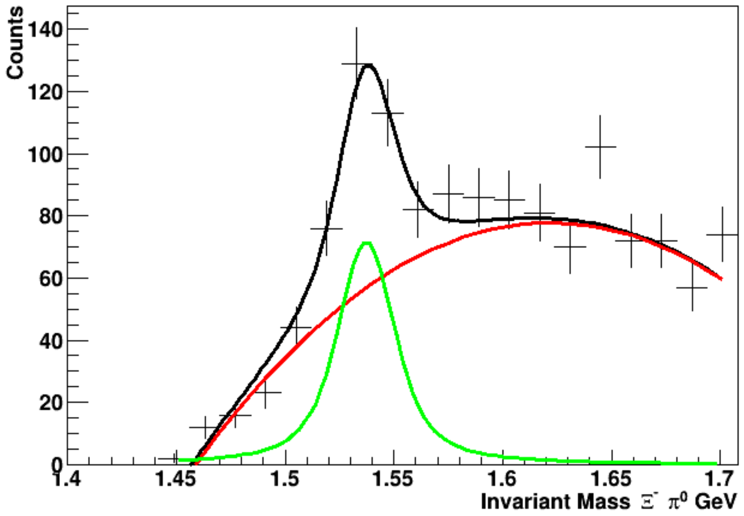
- Center = 1.537(7) GeV
- Γ = 8(3) MeV
- σ = 10(1) MeV

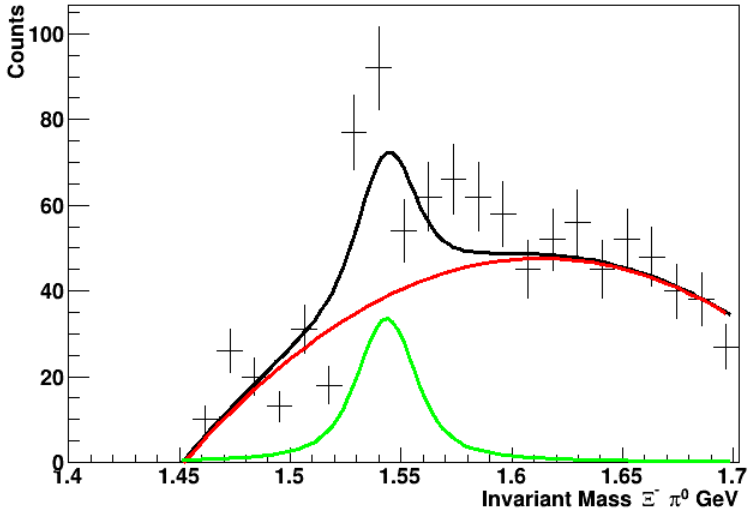
2017-2020 Data Sets



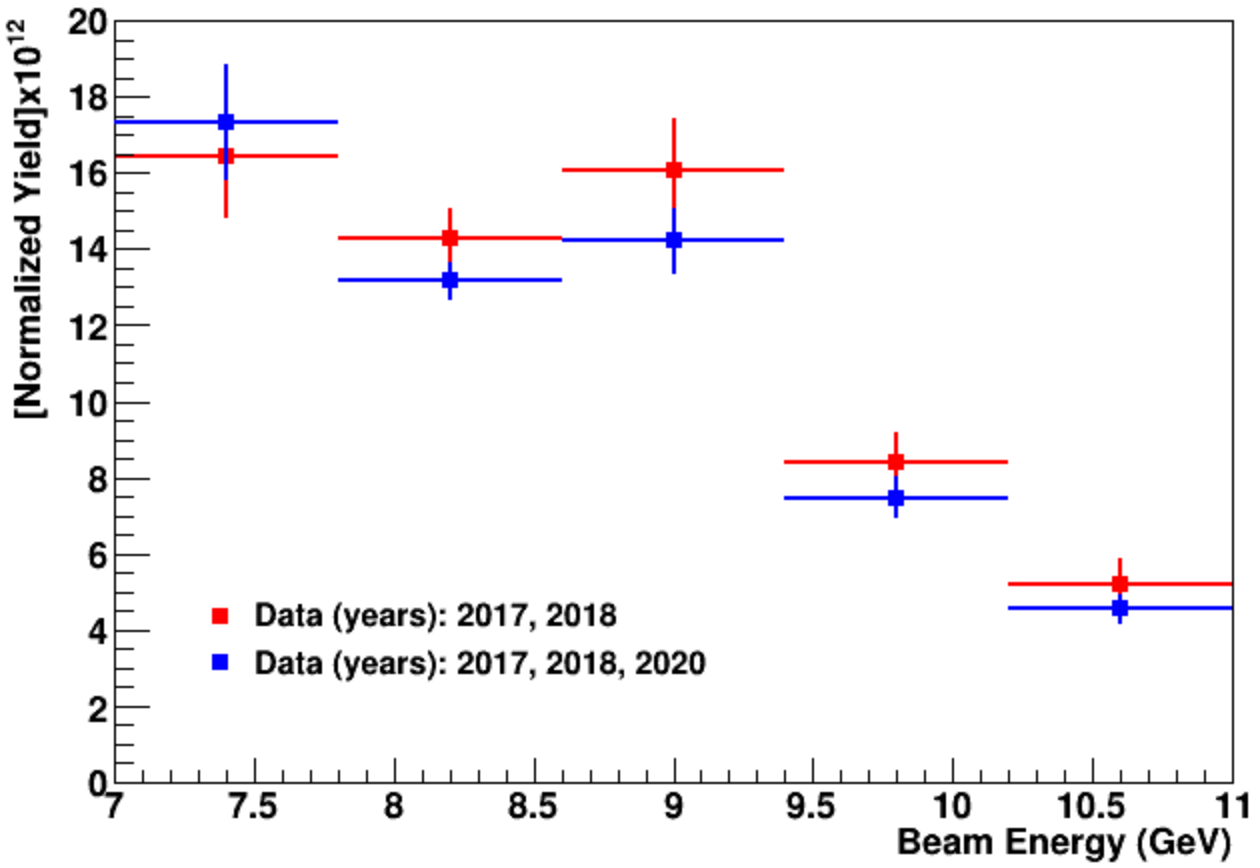








Normalized Yield Comparison



Conclusions

- Normalized yields are consistient between run periods
- Obtain efficiencies for a CS measurement

End

Normalized Yield Comparison