Contribution ID: **1015** Type: **Parallel session talk**

# Determination of $K_S^0$ Fragmentation Functions including BESIII Measurements and using Neural Networks

*Friday 19 July 2024 15:30 (15 minutes)*

In this study, we revisit the extraction of parton-to-$K_S^0$ hadron fragmentation functions (FFs)focusing on both next-to-leading-order(NLO) and next-to-next-to-leading-order (NNLO) accuracies.
Our approach involves the analysis of single inclusive electron-positron annihilation (SIA) data, marking the first incorporation of the most recent experimental data from BESIII. Employing the analytic derivative of a Neural Network, we fit the FFs within the framework of perturbative QCD, concurrently considering hadron mass corrections. To comprehensively address experimental uncertainties, the Monte Carlo method is employed. The estimates of $K_S^0$ production rates demonstrate the closest agreement with the data, offering robust descriptions well within their respective uncertainties.

## Alternate track

## I read the instructions above

Yes

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