0.0.1 *Results:* ΛK_S^0 *and* $\Lambda K^{\pm}$: *Fit Method Comparisons*

In Figure 1, we show extracted fit parameters for the case of $\Lambda K^+(\bar{\Lambda}K^-)$ sharing radii with $\Lambda K^-(\bar{\Lambda}K^+)$. The figure shows results for three different treatments of the non-femtoscopic background: a polynomial fit to THERMINATOR 2 simulation to model the background (circles), a linear fit to the data to model the background (squares), and the Stavinsky method (crosses).
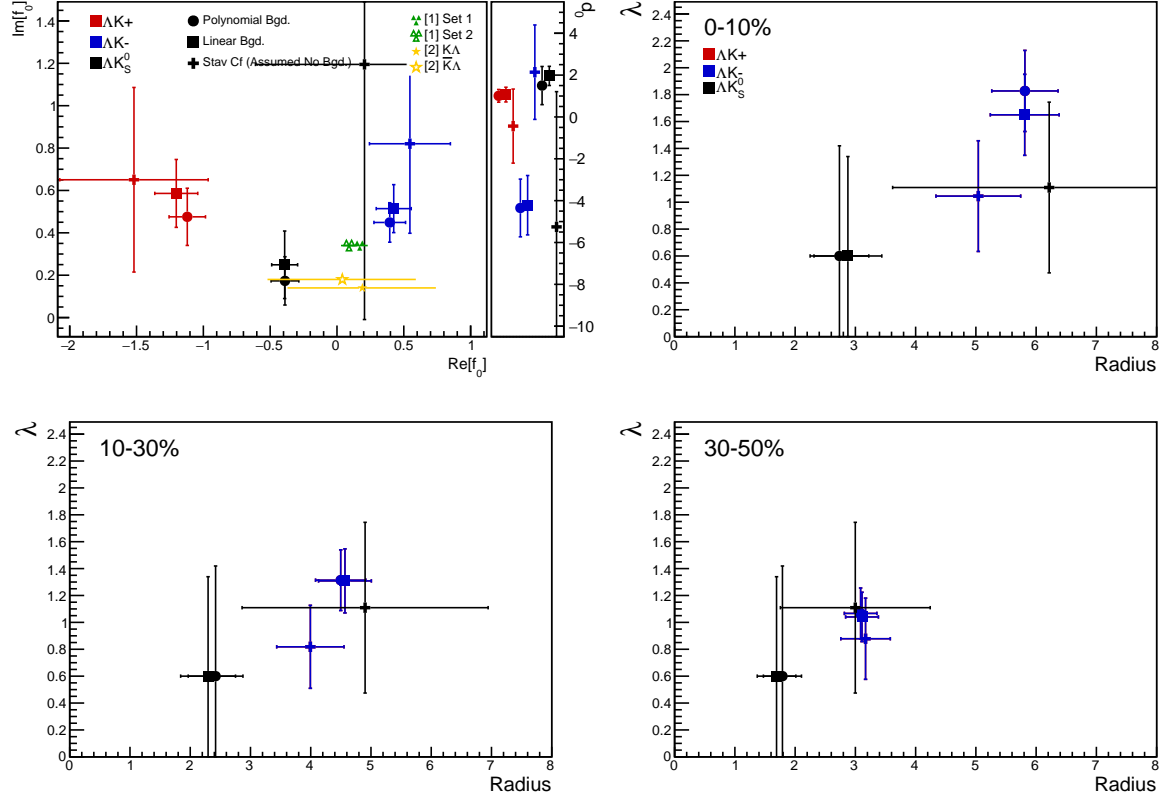

Fig. 1: Extracted fit results for all of our $\Lambda(\bar{\Lambda})K^{\pm}$ systems across all studied centrality bins (0-10%, 10-30%, 30-50%). The $\Lambda K^+(\bar{\Lambda}K^-)$ and $\Lambda K^-(\bar{\Lambda}K^+)$ systems share both a radius and a λ parameter for each centrality bin (i.e. 3 total radius parameters, 3 total λ parameters). The figure shows results for three different treatments of the non-femtoscopic background: a polynomial fit to THERMINATOR 2 simulation to model the background (circles), a linear fit to the data to model the background (squares), and the Stavinsky method (crosses). Note, ΛK^+ on the plot is shorthand for ΛK^+ and $\bar{\Lambda}K^-$ ($\Lambda K^+(\bar{\Lambda}K^-)$), and similar for the others. The green [**?**] and yellow [**?**] points show theoretical predictions made using chiral perturbation theory.
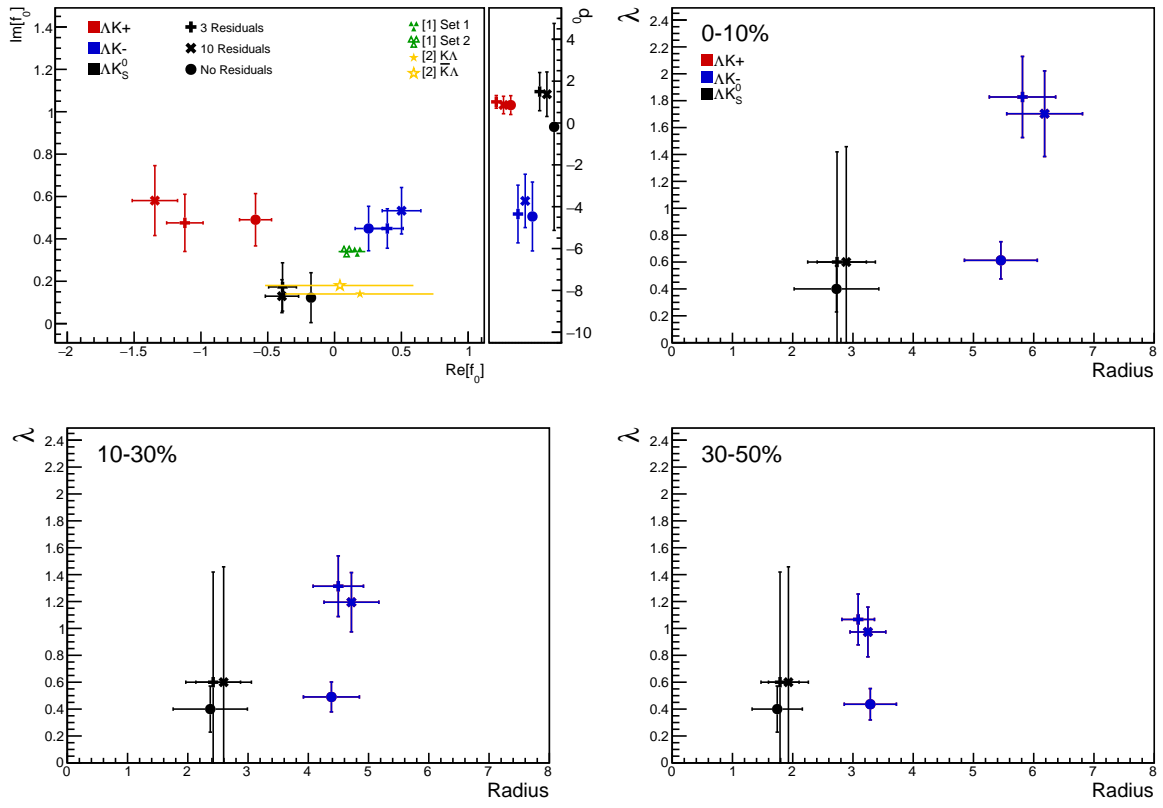
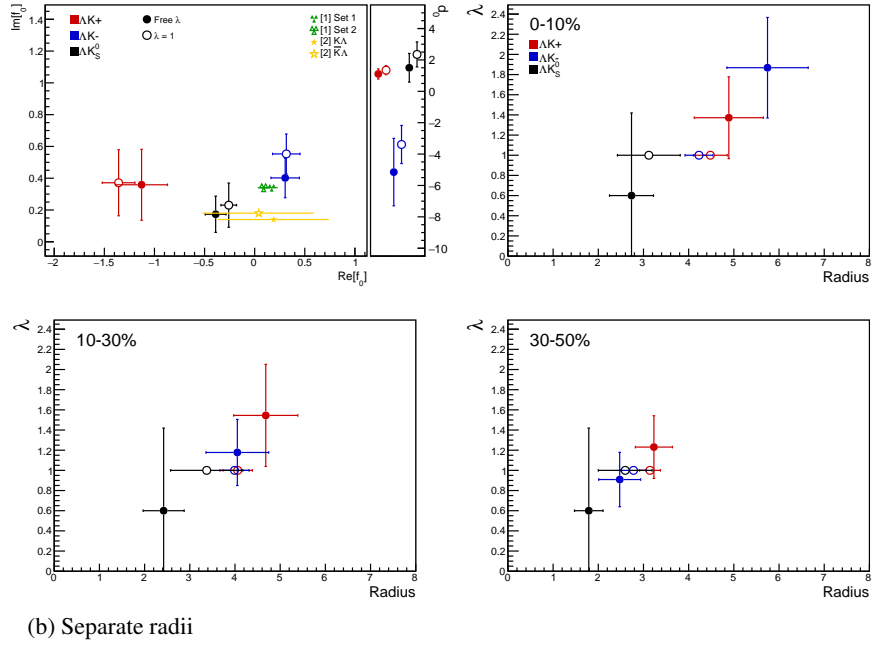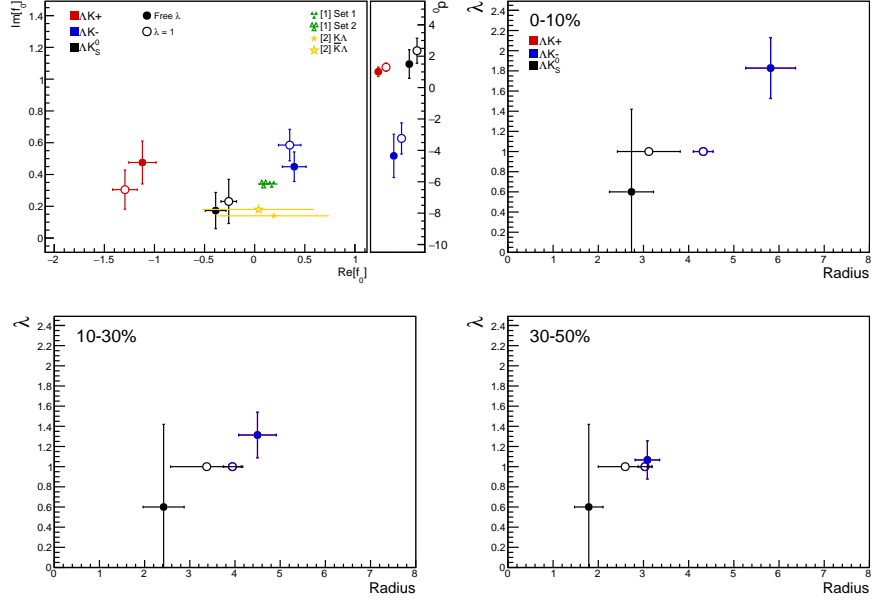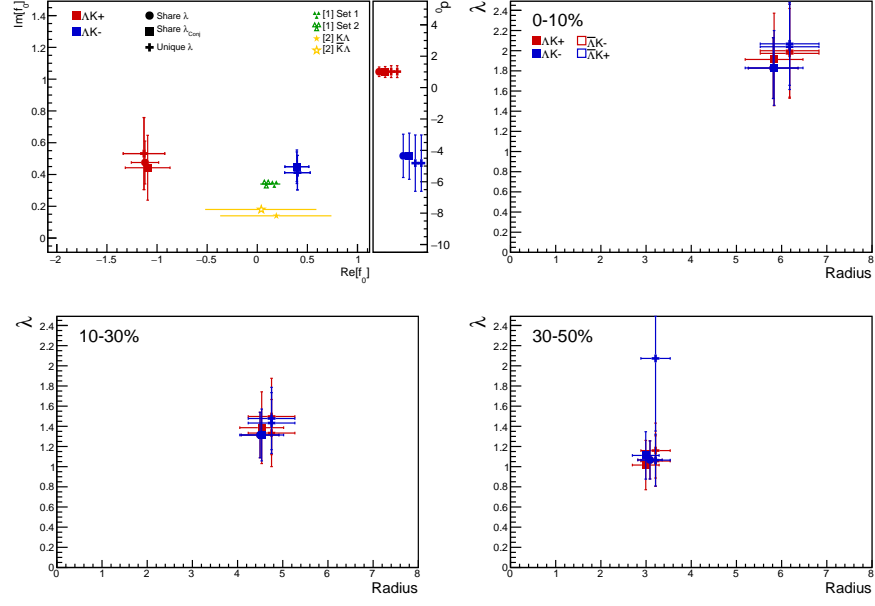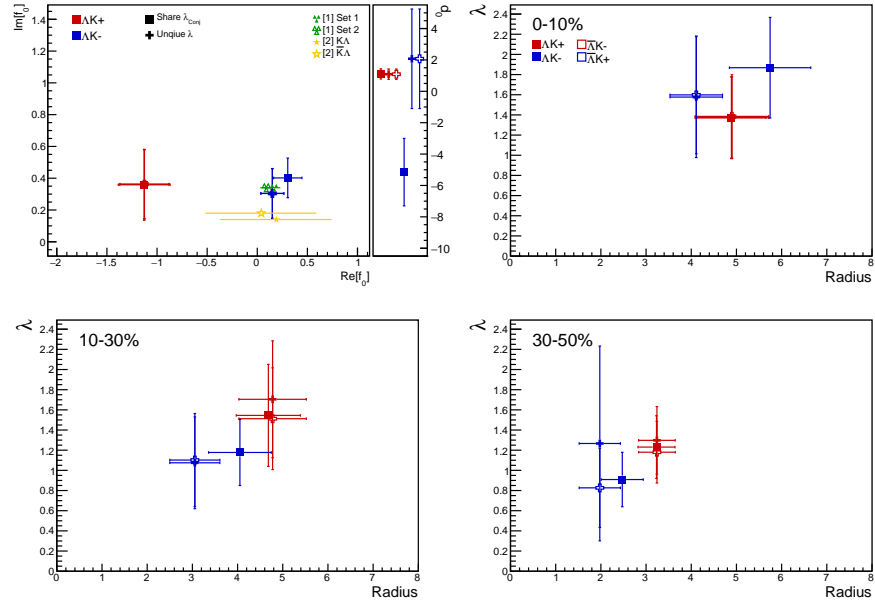**Fig. 2:** Compare Fit Parameters: Compare number of residuals

(a) Shared radii

(b) Separate radii

Fig. 3: Compare Fit Parameters: Free vs fixed λ

(a) Shared radii

(b) Separate radii

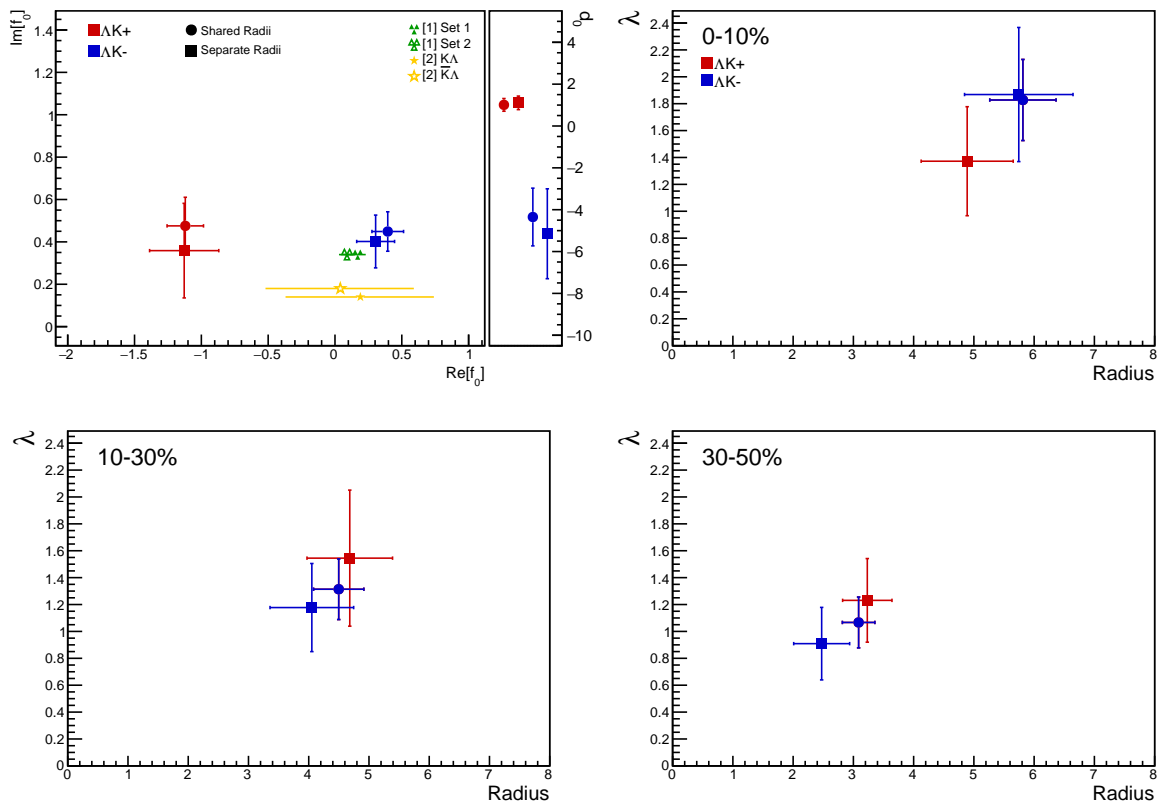**Fig. 4:** Compare Fit Parameters: Shared vs unique λ

Fig. 5: Compare Fit Parameters: Shared vs. Separate Radii