0.1 Systematic Errors: ΛK^0_S

0.1.1 Particle and Pair Cuts

The cuts included in the systematic study, as well as the values used in the variations, are listed below. Note, the central value corresponds to that used in the analysis.

ΛK^0_S systematics

DCA to PV $\Lambda(\bar{\Lambda})$	$<$ [4, 5, 6] mm
DCA to PV K^0_S	$<$ [2, 3, 4] mm
DCA $\Lambda(\bar{\Lambda})$ Daughters	$<$ [3, 4, 5] mm
DCA K^0_S Daughters	$<$ [2, 3, 4] mm
$\cos(\theta_{PA})$ $\Lambda(\bar{\Lambda})$ to PV	$>$ [0.9992, 0.9993, 0.9994]
$\cos(\theta_{PA})$ K^0_S to PV	$>$ [0.9992, 0.9993, 0.9994]
DCA to PV of $p(\bar{p})$ Daughter of $\Lambda(\bar{\Lambda})$	$>$ [0.5, 1, 2] mm
DCA to PV of $\pi^-(\pi^+)$ Daughter of $\Lambda(\bar{\Lambda})$	$>$ [2, 3, 4] mm
DCA to PV of π^+ Daughter of K^0_S	$>$ [2, 3, 4] mm
DCA to PV of π^- Daughter of K^0_S	$>$ [2, 3, 4] mm
$\overline{\Delta \mathbf{r}}$ of Like-Charge Daughters	$>$ [5, 6, 7] cm

Table 1: ΛK^0_S systematics. In the table, the shorthand used is as follows: *PA* = pointing angle; PV = primary vertex; DCA = distance of closest approach; $\overline{\Delta \mathbf{r}}$ = average separation

0.1.2 Non-Flat Background

We fit our non-flat background with a linear function. To study the contribution of this choice to our systematic errors, we also fit with a quadratic and Gaussian form. The resulting uncertainties are combined with the uncertainties arising from our particle cuts.

0.1.3 Fit Range

Our choice of k^* fit range was varied by $\pm$ 25%. The resulting uncertainties in the extracted parameter sets were combined with our uncertainties arising from our particle and pair cuts.