DCA $\Lambda(\bar{\Lambda})$

Pair Type	Centrality	Fit Amplitudes					
		Amplitude	Error	Sig	Amplitude	Error	Sig
		4 vs 5 mm			5 vs 6 mm		
ΛK^0_S	0-10%	2.616e-04	2.840e-04	No	-5.282e-03	4.887e-03	No
	10-30%	-1.236e-03	1.568e-03	No	6.110e-05	1.457e-04	No
	30-50%	-4.664e-02	3.295e-02	No	-1.877e-01	7.037e-02	Yes
$\bar{\Lambda}K^0_S$	0-10%	-6.093e-05	3.827e-05	No	-9.599e-02	1.133e-01	No
	10-30%	-3.478e-05	1.983e-04	No	-2.846e-04	6.743e-04	No
	30-50%	-2.054e-02	2.609e-02	No	-3.701e-03	3.136e-03	No

Table 1: $\Lambda(\bar{\Lambda})K^0_S$ Analyses: DCA $\Lambda(\bar{\Lambda})$ caption

DCA K^0_S

Pair Type	Centrality	Fit Amplitudes					
		Amplitude	Error	Sig	Amplitude	Error	Sig
		2 vs 3 mm			3 vs 4 mm		
ΛK^0_S	0-10%	-1.149e-04	1.616e-04	No	1.495e-04	3.020e-04	No
	10-30%	2.336e-04	7.234e-05	Yes	-2.560e-03	2.270e-03	No
	30-50%	-7.966e-03	4.151e-03	No	-1.721e-02	6.245e-03	Yes
$\bar{\Lambda}K^0_S$	0-10%	6.657e-05	5.808e-04	No	7.037e-05	2.753e-05	Yes
	10-30%	-4.373e-04	3.529e-04	No	-4.653e-04	3.627e-04	No
	30-50%	-2.048e-03	1.296e-03	No	-2.871e-04	8.150e-04	No

Table 2: $\Lambda(\bar{\Lambda})K^0_S$ Analyses: DCA K^0_S caption

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.

1. DCA $\Lambda(\bar{\Lambda})$: {4, 5, 6 mm}
2. DCA K^0_S: {2, 3, 4 mm}
3. DCA $\Lambda(\bar{\Lambda})$ Daughters: {3, 4, 5 mm}
4. DCA K^0_S Daughters: {2, 3, 4 mm}
5. $\Lambda(\bar{\Lambda})$ Cosine of Pointing Angle: {0.9992, 0.9993, 0.9994}
6. K^0_S Cosine of Pointing Angle: {0.9992, 0.9993, 0.9994}
7. DCA to Primary Vertex of $p(\bar{p})$ Daughter of $\Lambda(\bar{\Lambda})$: {0.5, 1, 2 mm}
8. DCA to Primary Vertex of $\pi^-(\pi^+)$ Daughter of $\Lambda(\bar{\Lambda})$: {0.5, 1, 2 mm}
9. DCA to Primary Vertex of π^+ Daughter of K^0_S: {2, 3, 4 mm}
10. DCA to Primary Vertex of π^- Daughter of K^0_S: {2, 3, 4 mm}
11. Average Separation of Like-Charge Daughters: {5, 6, 7 cm}

DCA $\Lambda(\bar{\Lambda})$ Daughters

Pair Type	Centrality	Fit Amplitudes					
		Amplitude	Error	Sig	Amplitude	Error	Sig
		3 vs 4 mm			4 vs 5 mm		
ΛK^0_S	0-10%	1.743e-05	3.776e-05	No	1.972e-04	2.813e-04	No
	10-30%	1.293e-04	7.761e-05	No	-8.925e-05	6.165e-05	No
	30-50%	-8.647e-02	9.120e-02	No	-5.097e-02	5.611e-02	No
$\bar{\Lambda}K^0_S$	0-10%	-8.539e-06	3.914e-05	No	5.936e-05	3.128e-05	No
	10-30%	1.001e-04	7.999e-05	No	-2.452e-04	2.952e-04	No
	30-50%	4.672e-05	1.859e-04	No	-1.423e-01	1.753e-01	No

Table 3: $\Lambda(\bar{\Lambda})K^0_S$ Analyses: DCA $\Lambda(\bar{\Lambda})$ Daughters

DCA K^0_S Daughters

Pair Type	Centrality	Fit Amplitudes					
		Amplitude	Error	Sig	Amplitude	Error	Sig
		2 vs 3 mm			3 vs 4 mm		
ΛK^0_S	0-10%	-1.383e-03	1.201e-03	No	-2.394e-03	2.528e-03	No
	10-30%	-1.199e-01	6.112e-02	No	-1.673e-03	1.620e-03	No
	30-50%	-1.397e-01	5.508e-02	Yes	-2.249e-03	3.303e-03	No
$\bar{\Lambda}K^0_S$	0-10%	-3.646e-03	2.561e-03	No	-4.246e-04	5.171e-04	No
	10-30%	1.800e-04	8.734e-05	Yes	-7.128e-04	9.398e-04	No
	30-50%	-2.813e-02	1.883e-02	No	-1.285e-02	9.463e-03	No

Table 4: $\Lambda(\bar{\Lambda})K^0_S$ Analyses: DCA K^0_S Daughters

$\Lambda(\bar{\Lambda})$ Cosine of Pointing Angle

Pair Type	Centrality	Fit Amplitudes					
		Amplitude	Error	Sig	Amplitude	Error	Sig
		0.9992 vs 0.9993			0.9993 vs 0.9994		
ΛK^0_S	0-10%	4.733e-03	2.311e-03	Yes	-7.459e-05	1.768e-04	No
	10-30%	5.201e-03	2.270e-03	Yes	-2.253e-05	7.593e-05	No
	30-50%	-6.078e-05	6.309e-05	No	5.494e-03	1.496e-03	Yes
$\bar{\Lambda}K^0_S$	0-10%	-2.031e-05	8.438e-07	Yes	-4.978e-05	6.433e-05	No
	10-30%	3.929e-04	2.778e-04	No	1.333e-04	2.362e-04	No
	30-50%	1.770e-03	6.120e-04	Yes	1.169e-04	7.436e-05	No

Table 5: $\Lambda(\bar{\Lambda})K^0_S$ Analyses: $\Lambda(\bar{\Lambda})$ Cosine of Pointing Angle

K^0_S Cosine of Pointing Angle

Pair Type	Centrality	Fit Amplitudes					
		Amplitude	Error	Sig	Amplitude	Error	Sig
		0.9992 vs 0.9993			0.9993 vs 0.9994		
ΛK^0_S	0-10%	-3.282e-04	4.102e-04	No	7.088e-04	3.667e-04	No
	10-30%	1.476e-03	2.082e-03	No	8.069e-03	3.961e-03	Yes
	30-50%	-3.150e-04	6.895e-04	No	5.057e-03	2.639e-03	No
$\bar{\Lambda}K^0_S$	0-10%	5.986e-04	4.487e-04	No	7.197e-04	7.865e-04	No
	10-30%	3.562e-03	1.378e-03	Yes	1.303e-03	1.067e-03	No
	30-50%	5.878e-02	8.703e-02	No	1.493e-04	1.017e-04	No

Table 6: $\Lambda(\bar{\Lambda})K^0_S$ Analyses: K^0_S Cosine of Pointing Angle

DCA to Primary Vertex of $p^+(\bar{p}^-)$ Daughter of $\Lambda(\bar{\Lambda})$

Pair Type	Centrality	Fit Amplitudes					
		Amplitude	Error	Sig	Amplitude	Error	Sig
		0.5 vs 1 mm			1 vs 2 mm		
ΛK^0_S	0-10%	0.000e+00	0.000e+00	No	-2.602e-03	2.525e-03	No
	10-30%	2.964e-07	1.165e-06	No	1.702e-04	9.110e-05	No
	30-50%	0.000e+00	0.000e+00	No	5.775e-03	7.524e-03	No
$\bar{\Lambda}K^0_S$	0-10%	0.000e+00	0.000e+00	No	-2.584e-04	4.464e-04	No
	10-30%	0.000e+00	0.000e+00	No	-3.469e-04	1.403e-04	Yes
	30-50%	0.000e+00	0.000e+00	No	-6.689e-04	1.232e-03	No

Table 7: $\Lambda(\bar{\Lambda})K^0_S$ Analyses: DCA to Primary Vertex of $p^+(\bar{p}^-)$ Daughter of $\Lambda(\bar{\Lambda})$

DCA to Primary Vertex of $\pi^-(\pi^+)$ Daughter of $\Lambda(\bar{\Lambda})$

Pair Type	Centrality	Fit Amplitudes					
		Amplitude	Error	Sig	Amplitude	Error	Sig
		2 vs 3 mm			3 vs 4 mm		
ΛK^0_S	0-10%	3.829e-05	1.846e-05	Yes	-4.781e-05	8.826e-05	No
	10-30%	1.498e-03	2.398e-03	No	4.245e+00	4.457e+01	No
	30-50%	3.751e-03	2.567e-03	No	6.001e-03	4.805e-03	No
$\bar{\Lambda}K^0_S$	0-10%	5.680e-05	1.816e-05	Yes	-3.516e-05	2.272e-05	No
	10-30%	1.539e-04	2.857e-04	No	-1.311e-04	4.871e-05	Yes
	30-50%	1.410e-03	1.734e-03	No	4.401e-02	1.349e-02	Yes

Table 8: $\Lambda(\bar{\Lambda})K^0_S$ Analyses: DCA to Primary Vertex of $\pi^-(\pi^+)$ Daughter of $\Lambda(\bar{\Lambda})$

DCA to Primary Vertex of π^+ Daughter of K^0_S

Pair Type	Centrality	Fit Amplitudes					
		Amplitude	Error	Sig	Amplitude	Error	Sig
		2 vs 3 mm			3 vs 4 mm		
ΛK^0_S	0-10%	-4.519e-05	2.636e-05	No	-8.563e-05	3.040e-05	Yes
	10-30%	-8.408e-03	7.107e-03	No	-4.274e-04	9.735e-04	No
	30-50%	2.064e-03	1.619e-03	No	1.274e-03	1.270e-03	No
$\bar{\Lambda}K^0_S$	0-10%	8.474e-04	1.271e-03	No	3.787e-04	3.383e-04	No
	10-30%	-7.583e-05	5.660e-05	No	-7.112e-03	1.605e-02	No
	30-50%	-6.532e-04	1.388e-04	Yes	3.770e-02	1.629e-02	Yes

Table 9: $\Lambda(\bar{\Lambda})K^0_S$ Analyses: DCA to Primary Vertex of π^+ Daughter of K^0_S

DCA to Primary Vertex of π^- Daughter of K^0_S

Pair Type	Centrality	Fit Amplitudes					
		Amplitude	Error	Sig	Amplitude	Error	Sig
		2 vs 3 mm			3 vs 4 mm		
ΛK^0_S	0-10%	-3.283e-04	4.184e-04	No	3.117e-04	2.151e-04	No
	10-30%	-7.208e-07	3.153e-04	No	2.858e-04	6.697e-04	No
	30-50%	4.434e-02	2.574e-02	No	2.761e-04	1.565e-04	No
$\bar{\Lambda}K^0_S$	0-10%	8.823e-05	2.701e-05	Yes	9.286e-02	1.113e-01	No
	10-30%	1.778e-04	5.686e-05	Yes	1.343e-03	1.986e-03	No
	30-50%	1.449e-04	1.368e-04	No	-1.887e-04	1.605e-04	No

Table 10: $\Lambda(\bar{\Lambda})K^0_S$ Analyses: DCA to Primary Vertex of π^- Daughter of K^0_S

Avgerage Separation of Like-Charge Daughters

Pair Type	Daughters		Centrality	Fit Amplitude					
				Amplitude	Error	Sig	Amplitude	Error	Sig
				5.0 vs 6.0 cm			6.0 vs 7.0 cm		
ΛK^0_S	p(Λ)	$\pi^+(K^0_S)$	0-10%	1.665e-05	2.087e-06	Yes	2.653e-04	1.739e-04	No
			10-30%	2.331e-05	4.563e-05	No	-1.713e-05	6.046e-06	Yes
			30-50%	4.333e-04	1.155e-04	Yes	7.198e-04	1.244e-04	Yes
ΛK^0_S	$\pi^-(\Lambda)$	$\pi^-(K^0_S)$	0-10%	7.361e-06	2.047e-06	Yes	-2.548e-05	2.467e-05	No
			10-30%	4.421e-05	3.105e-05	No	7.315e-04	1.322e-04	Yes
			30-50%	6.366e-05	5.813e-05	No	1.154e-04	8.695e-06	Yes
$\bar{\Lambda}K^0_S$	$\pi^+(\bar{\Lambda})$	$\pi^+(K^0_S)$	0-10%	8.888e-04	2.082e-04	Yes	-5.316e-06	3.826e-05	No
			10-30%	9.162e-04	2.614e-04	Yes	1.925e-05	6.041e-05	No
			30-50%	1.478e-04	4.676e-05	Yes	9.973e-05	6.549e-05	No
$\bar{\Lambda}K^0_S$	$\bar{p}^-(\bar{\Lambda})$	$\pi^-(K^0_S)$	0-10%	1.730e-04	1.161e-04	No	-2.798e-05	4.725e-05	No
			10-30%	1.579e-05	5.734e-05	No	-3.884e-07	6.028e-06	No
			30-50%	1.074e-04	3.781e-05	Yes	4.932e-04	2.440e-04	Yes

Table 11: $\Lambda(\bar{\Lambda})K^0_S$ Analyses: Avgerage Separation of Positive Daughters

0.1.2 Non-Flat Background

0.1.3 Fit Range