Polynomial Bgds, THERM Bgds fit together

Centrality	**System**	**Parameter**	**Methods**				
			Separate Radii		Shared Radii		
			Unique λ	Share λ_{Conj}	Unique λ	Share λ_{Conj}	Share Single λ
0-10%	ΛK^+	λ	1.37	1.37	1.97	1.91	1.83
	$\bar{\Lambda} K^-$	λ	1.39		2.00		
	ΛK^-	λ	1.58	1.87	2.04	1.83	
	$\bar{\Lambda} K^+$	λ	1.60		2.07		
	ΛK^+ & $\bar{\Lambda} K^-$	R	4.90	4.89	6.18	5.83	5.81
	ΛK^- & $\bar{\Lambda} K^+$	R	4.11	5.75			
10-30%	ΛK^+	λ	1.70	1.54	1.50	1.39	1.31
	$\bar{\Lambda} K^-$	λ	1.51		1.33		
	ΛK^-	λ	1.08	1.18	1.43	1.31	
	$\bar{\Lambda} K^+$	λ	1.10		1.48		
	ΛK^+ & $\bar{\Lambda} K^-$	R	4.78	4.68	4.75	4.53	4.50
	ΛK^- & $\bar{\Lambda} K^+$	R	3.05	4.05			
30-50%	ΛK^+	λ	1.30	1.23	1.16	1.02	1.07
	$\bar{\Lambda} K^-$	λ	1.18		1.06		
	ΛK^-	λ	1.27	0.91	2.07	1.11	
	$\bar{\Lambda} K^+$	λ	0.83		1.06		
	ΛK^+ & $\bar{\Lambda} K^-$	R	3.24	3.23	3.21	2.99	3.09
	ΛK^- & $\bar{\Lambda} K^+$	R	1.98	2.47			
	ΛK^+ & $\bar{\Lambda} K^-$	$\mathbb{R}f_0$	-1.13	-1.13	-1.13	-1.09	-1.12
		$\mathbb{I}f_0$	0.36	0.36	0.53	0.44	0.48
		d_0	1.09	1.11	1.02	0.99	1.01
	ΛK^- & $\bar{\Lambda} K^+$	$\mathbb{R}f_0$	0.15	0.30	0.40	0.40	0.39
		$\mathbb{I}f_0$	0.30	0.40	0.41	0.45	0.45
		d_0	2.07	-5.15	-4.81	-4.37	-4.35

Table 1: Comparison: Polynomial non-flat background, THERMINATOR backgrounds fit together

Polynomial Bgds, THERM Bgds fit together(v2)

Centrality	**System**	**Parameter**	**Methods**				
			Separate Radii		Shared Radii		
			Unique λ	Share λ_{Conj}	Unique λ	Share λ_{Conj}	Share Single λ
0-10%	ΛK^+	λ	1.37	1.37	1.97	1.91	1.83
	$\bar{\Lambda} K^-$		1.39		2.00		
	ΛK^-		1.58	1.87	2.04	1.83	
	$\bar{\Lambda} K^+$		1.60		2.07		
	ΛK^+ & $\bar{\Lambda} K^-$	R	4.90	4.89	6.18	5.83	5.81
	ΛK^- & $\bar{\Lambda} K^+$		4.11	5.75			
10-30%	ΛK^+	λ	1.70	1.54	1.50	1.39	1.31
	$\bar{\Lambda} K^-$		1.51		1.33		
	ΛK^-		1.08	1.18	1.43	1.31	
	$\bar{\Lambda} K^+$		1.10		1.48		
	ΛK^+ & $\bar{\Lambda} K^-$	R	4.78	4.68	4.75	4.53	4.50
	ΛK^- & $\bar{\Lambda} K^+$		3.05	4.05			
30-50%	ΛK^+	λ	1.30	1.23	1.16	1.02	1.07
	$\bar{\Lambda} K^-$		1.18		1.06		
	ΛK^-		1.27	0.91	2.07	1.11	
	$\bar{\Lambda} K^+$		0.83		1.06		
	ΛK^+ & $\bar{\Lambda} K^-$	R	3.24	3.23	3.21	2.99	3.09
	ΛK^- & $\bar{\Lambda} K^+$		1.98	2.47			
	ΛK^+ & $\bar{\Lambda} K^-$	$\mathbb{R}f_0$	-1.13	-1.13	-1.13	-1.09	-1.12
		$\mathbb{I}f_0$	0.36	0.36	0.53	0.44	0.48
		d_0	1.09	1.11	1.02	0.99	1.01
	ΛK^- & $\bar{\Lambda} K^+$	$\mathbb{R}f_0$	0.15	0.30	0.40	0.40	0.39
		$\mathbb{I}f_0$	0.30	0.40	0.41	0.45	0.45
		d_0	2.07	-5.15	-4.81	-4.37	-4.35

Table 2: Comparison: Polynomial non-flat background, THERMINATOR backgrounds fit together(v2)

Linear Bgds

Centrality	**System**	**Parameter**	**Methods**				
			Separate Radii		Shared Radii		
			Unique λ	Share λ_{Conj}	Unique λ	Share λ_{Conj}	Share Single λ
0-10%	ΛK^+	λ	1.38	1.37	1.85	1.75	1.65
	$\bar{\Lambda} K^-$	λ	1.39		1.87		
	ΛK^-	λ	2.04	1.63	1.87	1.64	
	$\bar{\Lambda} K^+$	λ	2.07		1.91		
	ΛK^+ & $\bar{\Lambda} K^-$	R	5.27	5.25	6.22	5.83	5.81
	ΛK^- & $\bar{\Lambda} K^+$	R	6.51	5.67			
10-30%	ΛK^+	λ	1.68	1.49	1.56	1.39	1.31
	$\bar{\Lambda} K^-$	λ	1.46		1.36		
	ΛK^-	λ	1.43	1.16	1.46	1.30	
	$\bar{\Lambda} K^+$	λ	1.47		1.50		
	ΛK^+ & $\bar{\Lambda} K^-$	R	4.94	4.81	4.86	4.59	4.57
	ΛK^- & $\bar{\Lambda} K^+$	R	4.70	4.14			
30-50%	ΛK^+	λ	1.19	1.16	1.13	1.01	1.04
	$\bar{\Lambda} K^-$	λ	1.15		1.09		
	ΛK^-	λ	1.92	0.88	2.00	1.07	
	$\bar{\Lambda} K^+$	λ	1.01		1.03		
	ΛK^+ & $\bar{\Lambda} K^-$	R	3.28	3.28	3.24	3.03	3.11
	ΛK^- & $\bar{\Lambda} K^+$	R	3.11	2.54			
	ΛK^+ & $\bar{\Lambda} K^-$	$\mathbb{R} f_0$	-1.22	-1.23	-1.18	-1.16	-1.20
		$\mathbb{I} f_0$	0.53	0.52	0.64	0.53	0.59
		d_0	1.12	1.14	1.07	1.01	1.07
	ΛK^- & $\bar{\Lambda} K^+$	$\mathbb{R} f_0$	0.40	0.33	0.43	0.43	0.42
		$\mathbb{I} f_0$	0.44	0.47	0.46	0.52	0.51
		d_0	-5.20	-4.85	-4.78	-4.20	-4.22

Table 3: Comparison: Linear non-flat background

Stavinsky method, no non-flat background in fit

Centrality	**System**	**Parameter**	**Methods**				
			Separate Radii		Shared Radii		
			Unique λ	Share λ_{Conj}	Unique λ	Share λ_{Conj}	Share Single λ
0-10%	ΛK^+	λ	0.95	0.93	1.34	1.21	1.05
	$\bar{\Lambda} K^-$	λ	0.90		1.27		
	ΛK^-	λ	2.38	1.28	2.15	1.15	
	$\bar{\Lambda} K^+$	λ	2.26		2.06		
	ΛK^+ & $\bar{\Lambda} K^-$	R	5.44	5.43	5.75	5.25	5.04
	ΛK^- & $\bar{\Lambda} K^+$	R	5.54	5.06			
10-30%	ΛK^+	λ	0.71	0.68	0.87	0.80	0.82
	$\bar{\Lambda} K^-$	λ	0.67		0.81		
	ΛK^-	λ	1.56	0.90	1.47	0.88	
	$\bar{\Lambda} K^+$	λ	1.77		1.66		
	ΛK^+ & $\bar{\Lambda} K^-$	R	4.21	4.17	4.16	3.90	3.99
	ΛK^- & $\bar{\Lambda} K^+$	R	3.89	3.57			
30-50%	ΛK^+	λ	0.98	1.11	0.70	0.82	0.88
	$\bar{\Lambda} K^-$	λ	1.14		0.82		
	ΛK^-	λ	4.14	0.84	3.99	0.98	
	$\bar{\Lambda} K^+$	λ	1.38		1.36		
	ΛK^+ & $\bar{\Lambda} K^-$	R	4.01	4.07	3.03	3.03	3.17
	ΛK^- & $\bar{\Lambda} K^+$	R	2.65	2.36			
	ΛK^+ & $\bar{\Lambda} K^-$	$\mathbb{R} f_0$	-1.96	-1.92	-1.51	-1.46	-1.52
		$\mathbb{I} f_0$	1.13	1.12	0.77	0.57	0.65
		d_0	0.58	0.51	-0.47	-0.42	-0.44
	ΛK^- & $\bar{\Lambda} K^+$	$\mathbb{R} f_0$	0.24	0.32	0.34	0.53	0.55
		$\mathbb{I} f_0$	0.27	0.54	0.36	0.75	0.82
		d_0	6.28	4.36	4.13	2.35	2.14

Table 4: Comparison: Stavinsky method, no non-flat background in fit

Separate radii, unique λ

Centrality	System	Parameter	Methods				
			Poly. Bgd	Lin. Bgd	Stav.(No Bgd)	Stav.(Lin. Bgd)	Method 5
0-10%	ΛK^+	λ	1.37	1.38	0.95	0.00	0.00
	$\bar{\Lambda} K^-$	λ	1.39	1.39	0.90	0.00	0.00
	ΛK^-	λ	1.58	2.04	2.38	0.00	0.00
	$\bar{\Lambda} K^+$	λ	1.60	2.07	2.26	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$	R	4.90	5.27	5.44	0.00	0.00
	ΛK^- & $\bar{\Lambda} K^+$	R	4.11	6.51	5.54	0.00	0.00
10-30%	ΛK^+	λ	1.70	1.68	0.71	0.00	0.00
	$\bar{\Lambda} K^-$	λ	1.51	1.46	0.67	0.00	0.00
	ΛK^-	λ	1.08	1.43	1.56	0.00	0.00
	$\bar{\Lambda} K^+$	λ	1.10	1.47	1.77	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$	R	4.78	4.94	4.21	0.00	0.00
	ΛK^- & $\bar{\Lambda} K^+$	R	3.05	4.70	3.89	0.00	0.00
30-50%	ΛK^+	λ	1.30	1.19	0.98	0.00	0.00
	$\bar{\Lambda} K^-$	λ	1.18	1.15	1.14	0.00	0.00
	ΛK^-	λ	1.27	1.92	4.14	0.00	0.00
	$\bar{\Lambda} K^+$	λ	0.83	1.01	1.38	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$	R	3.24	3.28	4.01	0.00	0.00
	ΛK^- & $\bar{\Lambda} K^+$	R	1.98	3.11	2.65	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$	$\mathbb{R}f_0$	-1.13	-1.22	-1.96	0.00	0.00
		$\mathbb{I}f_0$	0.36	0.53	1.13	0.00	0.00
		d_0	1.09	1.12	0.58	0.00	0.00
	ΛK^- & $\bar{\Lambda} K^+$	$\mathbb{R}f_0$	0.15	0.40	0.24	0.00	0.00
		$\mathbb{I}f_0$	0.30	0.44	0.27	0.00	0.00
		d_0	2.07	-5.20	6.28	0.00	0.00

Table 5: Compare non-flat background treatment methods: Separate radii, unique λ

Separate radii, share λ_{Conj}

Centrality	System	Parameter	Methods				
			Poly. Bgd	Lin. Bgd	Stav.(No Bgd)	Stav.(Lin. Bgd)	Method 5
0-10%	ΛK^+ $\bar{\Lambda} K^-$	λ	1.37	1.37	0.93	0.00	0.00
	ΛK^- $\bar{\Lambda} K^+$	λ	1.87	1.63	1.28	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$	R	4.89	5.25	5.43	0.00	0.00
	ΛK^- & $\bar{\Lambda} K^+$	R	5.75	5.67	5.06	0.00	0.00
10-30%	ΛK^+ $\bar{\Lambda} K^-$	λ	1.54	1.49	0.68	0.00	0.00
	ΛK^- $\bar{\Lambda} K^+$	λ	1.18	1.16	0.90	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$	R	4.68	4.81	4.17	0.00	0.00
	ΛK^- & $\bar{\Lambda} K^+$	R	4.05	4.14	3.57	0.00	0.00
30-50%	ΛK^+ $\bar{\Lambda} K^-$	λ	1.23	1.16	1.11	0.00	0.00
	ΛK^- $\bar{\Lambda} K^+$	λ	0.91	0.88	0.84	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$	R	3.23	3.28	4.07	0.00	0.00
	ΛK^- & $\bar{\Lambda} K^+$	R	2.47	2.54	2.36	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$	$\mathbb{R} f_0$	-1.13	-1.23	-1.92	0.00	0.00
		$\mathbb{I} f_0$	0.36	0.52	1.12	0.00	0.00
		d_0	1.11	1.14	0.51	0.00	0.00
	ΛK^- & $\bar{\Lambda} K^+$	$\mathbb{R} f_0$	0.30	0.33	0.32	0.00	0.00
		$\mathbb{I} f_0$	0.40	0.47	0.54	0.00	0.00
		d_0	-5.15	-4.85	4.36	0.00	0.00

Table 6: Compare non-flat background treatment methods: Separate radii, share λ_{Conj}

Separate radii, share λ_{Conj}(v2)

Centrality	System	Parameter	Methods		
			Poly. Bgd	Lin. Bgd	Stav.(No Bgd)
0-10%	ΛK^+ $\bar{\Lambda} K^-$	λ	1.37	1.37	0.93
	ΛK^- $\bar{\Lambda} K^+$	λ	1.87	1.63	1.28
	ΛK^+ & $\bar{\Lambda} K^-$	R	4.89	5.25	5.43
	ΛK^- & $\bar{\Lambda} K^+$	R	5.75	5.67	5.06
10-30%	ΛK^+ $\bar{\Lambda} K^-$	λ	1.54	1.49	0.68
	ΛK^- $\bar{\Lambda} K^+$	λ	1.18	1.16	0.90
	ΛK^+ & $\bar{\Lambda} K^-$	R	4.68	4.81	4.17
	ΛK^- & $\bar{\Lambda} K^+$	R	4.05	4.14	3.57
30-50%	ΛK^+ $\bar{\Lambda} K^-$	λ	1.23	1.16	1.11
	ΛK^- $\bar{\Lambda} K^+$	λ	0.91	0.88	0.84
	ΛK^+ & $\bar{\Lambda} K^-$	R	3.23	3.28	4.07
	ΛK^- & $\bar{\Lambda} K^+$	R	2.47	2.54	2.36
	ΛK^+ & $\bar{\Lambda} K^-$	$\mathbb{R} f_0$	-1.13	-1.23	-1.92
		$\mathbb{I} f_0$	0.36	0.52	1.12
		d_0	1.11	1.14	0.51
	ΛK^- & $\bar{\Lambda} K^+$	$\mathbb{R} f_0$	0.30	0.33	0.32
		$\mathbb{I} f_0$	0.40	0.47	0.54
		d_0	-5.15	-4.85	4.36

Table 7: Compare non-flat background treatment methods: Separate radii, share λ_{Conj}(v2)

Shared radii, unique λ

Centrality	System	Parameter	Methods				
			Poly. Bgd	Lin. Bgd	Stav.(No Bgd)	Stav.(Lin. Bgd)	Method 5
0-10%	ΛK^+	λ	1.97	1.85	1.34	0.00	0.00
	$\bar{\Lambda} K^-$	λ	2.00	1.87	1.27	0.00	0.00
	ΛK^-	λ	2.04	1.87	2.15	0.00	0.00
	$\bar{\Lambda} K^+$	λ	2.07	1.91	2.06	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$ ΛK^- & $\bar{\Lambda} K^+$	R	6.18	6.22	5.75	0.00	0.00
10-30%	ΛK^+	λ	1.50	1.56	0.87	0.00	0.00
	$\bar{\Lambda} K^-$	λ	1.33	1.36	0.81	0.00	0.00
	ΛK^-	λ	1.43	1.46	1.47	0.00	0.00
	$\bar{\Lambda} K^+$	λ	1.48	1.50	1.66	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$ ΛK^- & $\bar{\Lambda} K^+$	R	4.75	4.86	4.16	0.00	0.00
30-50%	ΛK^+	λ	1.16	1.13	0.70	0.00	0.00
	$\bar{\Lambda} K^-$	λ	1.06	1.09	0.82	0.00	0.00
	ΛK^-	λ	2.07	2.00	3.99	0.00	0.00
	$\bar{\Lambda} K^+$	λ	1.06	1.03	1.36	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$ ΛK^- & $\bar{\Lambda} K^+$	R	3.21	3.24	3.03	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$	$\mathbb{R} f_0$	-1.13	-1.18	-1.51	0.00	0.00
		$\mathbb{I} f_0$	0.53	0.64	0.77	0.00	0.00
		d_0	1.02	1.07	-0.47	0.00	0.00
	ΛK^- & $\bar{\Lambda} K^+$	$\mathbb{R} f_0$	0.40	0.43	0.34	0.00	0.00
		$\mathbb{I} f_0$	0.41	0.46	0.36	0.00	0.00
		d_0	-4.81	-4.78	4.13	0.00	0.00

Table 8: Compare non-flat background treatment methods: Shared radii, unique λ

Shared radii, share λ_{Conj}

Centrality	System	Parameter	Methods				
			Poly. Bgd	Lin. Bgd	Stav.(No Bgd)	Stav.(Lin. Bgd)	Method 5
0-10%	ΛK^+ $\bar{\Lambda} K^-$	λ	1.91	1.75	1.21	0.00	0.00
	ΛK^- $\bar{\Lambda} K^+$	λ	1.83	1.64	1.15	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$ ΛK^- & $\bar{\Lambda} K^+$	R	5.83	5.83	5.25	0.00	0.00
10-30%	ΛK^+ $\bar{\Lambda} K^-$	λ	1.39	1.39	0.80	0.00	0.00
	ΛK^- $\bar{\Lambda} K^+$	λ	1.31	1.30	0.88	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$ ΛK^- & $\bar{\Lambda} K^+$	R	4.53	4.59	3.90	0.00	0.00
30-50%	ΛK^+ $\bar{\Lambda} K^-$	λ	1.02	1.01	0.82	0.00	0.00
	ΛK^- $\bar{\Lambda} K^+$	λ	1.11	1.07	0.98	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$ ΛK^- & $\bar{\Lambda} K^+$	R	2.99	3.03	3.03	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$	$\mathbb{R}f_0$	-1.09	-1.16	-1.46	0.00	0.00
		$\mathbb{I}f_0$	0.44	0.53	0.57	0.00	0.00
		d_0	0.99	1.01	-0.42	0.00	0.00
	ΛK^- & $\bar{\Lambda} K^+$	$\mathbb{R}f_0$	0.40	0.43	0.53	0.00	0.00
		$\mathbb{I}f_0$	0.45	0.52	0.75	0.00	0.00
		d_0	-4.37	-4.20	2.35	0.00	0.00

Table 9: Compare non-flat background treatment methods: Shared radii, share λ_{Conj}

Shared radii, share single λ

Centrality	System	Parameter	Methods				
			Poly. Bgd	Lin. Bgd	Stav.(No Bgd)	Stav.(Lin. Bgd)	Method 5
0-10%	ΛK^+ $\bar{\Lambda} K^-$ ΛK^- $\bar{\Lambda} K^+$	λ	1.83	1.65	1.05	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$ ΛK^- & $\bar{\Lambda} K^+$	R	5.81	5.81	5.04	0.00	0.00
10-30%	ΛK^+ $\bar{\Lambda} K^-$ ΛK^- $\bar{\Lambda} K^+$	λ	1.31	1.31	0.82	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$ ΛK^- & $\bar{\Lambda} K^+$	R	4.50	4.57	3.99	0.00	0.00
30-50%	ΛK^+ $\bar{\Lambda} K^-$ ΛK^- $\bar{\Lambda} K^+$	λ	1.07	1.04	0.88	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$ ΛK^- & $\bar{\Lambda} K^+$	R	3.09	3.11	3.17	0.00	0.00
	ΛK^+ & $\bar{\Lambda} K^-$	$\mathbb{R}f_0$	-1.12	-1.20	-1.52	0.00	0.00
		$\mathbb{I}f_0$	0.48	0.59	0.65	0.00	0.00
		d_0	1.01	1.07	-0.44	0.00	0.00
	ΛK^- & $\bar{\Lambda} K^+$	$\mathbb{R}f_0$	0.39	0.42	0.55	0.00	0.00
		$\mathbb{I}f_0$	0.45	0.51	0.82	0.00	0.00
		d_0	-4.35	-4.22	2.14	0.00	0.00

Table 10: Compare non-flat background treatment methods: Shared radii, share single λ

Shared radii, share single λ(v2)

Centrality	System	Parameter	Methods		
			Poly. Bgd	Lin. Bgd	Stav.(No Bgd)
0-10%	ΛK^+ $\bar{\Lambda} K^-$ ΛK^- $\bar{\Lambda} K^+$	λ	1.83	1.65	1.05
	ΛK^+ & $\bar{\Lambda} K^-$ ΛK^- & $\bar{\Lambda} K^+$	R	5.81	5.81	5.04
10-30%	ΛK^+ $\bar{\Lambda} K^-$ ΛK^- $\bar{\Lambda} K^+$	λ	1.31	1.31	0.82
	ΛK^+ & $\bar{\Lambda} K^-$ ΛK^- & $\bar{\Lambda} K^+$	R	4.50	4.57	3.99
30-50%	ΛK^+ $\bar{\Lambda} K^-$ ΛK^- $\bar{\Lambda} K^+$	λ	1.07	1.04	0.88
	ΛK^+ & $\bar{\Lambda} K^-$ ΛK^- & $\bar{\Lambda} K^+$	R	3.09	3.11	3.17
	ΛK^+ & $\bar{\Lambda} K^-$	$\mathbb{R} f_0$	-1.12	-1.20	-1.52
		$\mathbb{I} f_0$	0.48	0.59	0.65
		d_0	1.01	1.07	-0.44
	ΛK^- & $\bar{\Lambda} K^+$	$\mathbb{R} f_0$	0.39	0.42	0.55
		$\mathbb{I} f_0$	0.45	0.51	0.82
		d_0	-4.35	-4.22	2.14

Table 11: Compare non-flat background treatment methods: Shared radii, share single λ(v2)