



$I(J^P) = \frac{1}{2}(\frac{1}{2}^+)$ Status: ****

The parity has not actually been measured, but + is of course expected.

We have omitted some results that have been superseded by later experiments. See our earlier editions.

Ξ^- MASS

The fit uses the Ξ^- , Ξ^+ , and Ξ^0 masses and the $\Xi - \Xi^+$ mass difference. It assumes that the Ξ^- and Ξ^+ masses are the same.

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
1321.71±0.07 OUR FIT				
1321.70±0.08±0.05	2478 ± 68	ABDALLAH	06E DLPH	from Z decays
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
1321.46±0.34	632	DIBIANCA	75 DBC	4.9 GeV/c $K^- d$
1321.12±0.41	268	WILQUET	72 HLBC	
1321.87±0.51	195	¹ GOLDWASSER	70 HBC	5.5 GeV/c $K^- p$
1321.67±0.52	6	CHIEN	66 HBC	6.9 GeV/c $\bar{p} p$
1321.4 ±1.1	299	LONDON	66 HBC	
1321.3 ±0.4	149	PJERROU	65B HBC	
1321.1 ±0.3	241	² BADIER	64 HBC	
1321.4 ±0.4	517	² JAUNEAU	63D FBC	
1321.1 ±0.65	62	² SCHNEIDER	63 HBC	

¹ GOLDWASSER 70 uses $m_\Lambda = 1115.58$ MeV.
² These masses have been increased 0.09 MeV because the Λ mass increased.

Ξ^+ MASS

The fit uses the Ξ^- , Ξ^+ , and Ξ^0 masses and the $\Xi^- - \Xi^+$ mass difference. It assumes that the Ξ^- and Ξ^+ masses are the same.

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
1321.71±0.07 OUR FIT				
1321.73±0.08±0.05	2256 ± 63	ABDALLAH	06E DLPH	from Z decays
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
1321.6 ±0.8	35	VOTRUBA	72 HBC	10 GeV/c $K^+ p$
1321.2 ±0.4	34	STONE	70 HBC	
1320.69±0.93	5	CHIEN	66 HBC	6.9 GeV/c $\bar{p} p$

$(m_{\Xi^-} - m_{\Xi^+}) / m_{\Xi^-}$

A test of CPT invariance.

VALUE	DOCUMENT ID	TECN	COMMENT
(-2.5±8.7) × 10⁻⁵	ABDALLAH	06E DLPH	from Z decays

Ξ^- MEAN LIFE

Measurements with an error $> 0.2 \times 10^{-10}$ s or with systematic errors not included have been omitted.

VALUE (10^{-10} s)	EVTS	DOCUMENT ID	TECN	COMMENT
1.639±0.015 OUR AVERAGE				
1.65 ±0.07 ±0.12	2478 ± 68	ABDALLAH	06E	DLPH from Z decays
1.652±0.051	32k	BOURQUIN	84	SPEC Hyperon beam
1.665±0.065	41k	BOURQUIN	79	SPEC Hyperon beam
1.609±0.028	4286	HEMINGWAY	78	HBC 4.2 GeV/c $K^- p$
1.67 ±0.08		DIBIANCA	75	DBC 4.9 GeV/c $K^- d$
1.63 ±0.03	4303	BALTAY	74	HBC 1.75 GeV/c $K^- p$
1.73 ^{+0.08} _{-0.07}	680	MAYEUR	72	HLBC 2.1 GeV/c K^-
1.61 ±0.04	2610	DAUBER	69	HBC
1.80 ±0.16	299	LONDON	66	HBC
1.70 ±0.12	246	PJERROU	65B	HBC
1.69 ±0.07	794	HUBBARD	64	HBC
1.86 ^{+0.15} _{-0.14}	517	JAUNEAU	63D	FBC

Ξ^+ MEAN LIFE

VALUE (10^{-10} s)	EVTS	DOCUMENT ID	TECN	COMMENT
1.70±0.08±0.12				
• • • We do not use the following data for averages, fits, limits, etc. • • •	2256 ± 63	ABDALLAH	06E	DLPH from Z decays
1.55 ^{+0.35} _{-0.20}	35	¹ VOTRUBA	72	HBC 10 GeV/c $K^+ p$
1.6 ±0.3	34	STONE	70	HBC
1.9 ^{+0.7} _{-0.5}	12	¹ SHEN	67	HBC
1.51±0.55	5	¹ CHIEN	66	HBC 6.9 GeV/c $\bar{p} p$
¹ The error is statistical only.				

$(\tau_{\Xi^-} - \tau_{\Xi^+}) / \tau_{\Xi^-}$

A test of *CPT* invariance.

VALUE	DOCUMENT ID	TECN	COMMENT
-0.01±0.07	ABDALLAH	06E	DLPH from Z decays

Ξ^- MAGNETIC MOMENT

See the “Quark Model” review.

VALUE (μ_N)	EVTS	DOCUMENT ID	TECN	COMMENT
-0.6507±0.0025 OUR AVERAGE				
-0.6505±0.0025	4.36M	DURYEA	92	SPEC 800 GeV p Be
-0.661 ±0.036 ±0.036	44k	TROST	89	SPEC $\Xi^- \sim 250$ GeV
-0.69 ±0.04	218k	RAMEIKA	84	SPEC 400 GeV p Be

• • • We do not use the following data for averages, fits, limits, etc. • • •

−0.674 ±0.021 ±0.020	122k	HO	90	SPEC	See
					DURYEA 92
−2.1 ±0.8	2436	COOL	74	OSPK	1.8 GeV/c K [−] p
−0.1 ±2.1	2724	BINGHAM	70B	OSPK	1.8 GeV/c K [−] p

Ξ^+ MAGNETIC MOMENT

See the “Quark Model” review.

VALUE (μ_N)	EVTs	DOCUMENT ID	TECN	COMMENT	
+0.657±0.028±0.020	70k	HO	90	SPEC	800 GeV p Be

$(\mu_{\Xi^-} + \mu_{\Xi^+}) / |\mu_{\Xi^-}|$

A test of *CPT* invariance. We calculate this from the Ξ^- and Ξ^+ magnetic moments above.

VALUE	DOCUMENT ID
+0.01±0.05 OUR EVALUATION	

Ξ^- DECAY MODES

Mode	Fraction (Γ_i/Γ)	Confidence level
Γ_1 $\Lambda\pi^-$	(99.887±0.035) %	
Γ_2 $\Sigma^-\gamma$	(1.27 ±0.23) × 10 ^{−4}	
Γ_3 $\Lambda e^-\bar{\nu}_e$	(5.63 ±0.31) × 10 ^{−4}	
Γ_4 $\Lambda\mu^-\bar{\nu}_\mu$	(3.5 ^{+3.5} _{−2.2}) × 10 ^{−4}	
Γ_5 $\Sigma^0 e^-\bar{\nu}_e$	(8.7 ±1.7) × 10 ^{−5}	
Γ_6 $\Sigma^0 \mu^-\bar{\nu}_\mu$	< 8 × 10 ^{−4}	90%
Γ_7 $\Xi^0 e^-\bar{\nu}_e$	< 2.59 × 10 ^{−4}	90%

$\Delta S = 2$ forbidden (*S2*) modes

Γ_8 $n\pi^-$	<i>S2</i>	< 1.9	× 10 ^{−5}	90%
Γ_9 $ne^-\bar{\nu}_e$	<i>S2</i>	< 3.2	× 10 ^{−3}	90%
Γ_{10} $n\mu^-\bar{\nu}_\mu$	<i>S2</i>	< 1.5	%	90%
Γ_{11} $p\pi^-\pi^-$	<i>S2</i>	< 4	× 10 ^{−4}	90%
Γ_{12} $p\pi^-e^-\bar{\nu}_e$	<i>S2</i>	< 4	× 10 ^{−4}	90%
Γ_{13} $p\pi^-\mu^-\bar{\nu}_\mu$	<i>S2</i>	< 4	× 10 ^{−4}	90%
Γ_{14} $p\mu^-\mu^-$	<i>L</i>	< 4	× 10 ^{−8}	90%

CONSTRAINED FIT INFORMATION

An overall fit to 4 branching ratios uses 5 measurements and one constraint to determine 5 parameters. The overall fit has a $\chi^2 = 1.0$ for 1 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients $\langle \delta x_i \delta x_j \rangle / (\delta x_i \delta x_j)$, in percent, from the fit to the branching fractions, $x_i \equiv \Gamma_i / \Gamma_{\text{total}}$. The fit constrains the x_i whose labels appear in this array to sum to one.

x_2	−6			
x_3	−8	0		
x_4	−99	0	−1	
x_5	−5	0	0	0
	x_1	x_2	x_3	x_4

Ξ^- BRANCHING RATIOS

A number of early results have been omitted.

$\Gamma(\Sigma^- \gamma)/\Gamma(\Lambda \pi^-)$					Γ_2/Γ_1
<u>VALUE (units 10^{-4})</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
1.27±0.24 OUR FIT					
1.27±0.23 OUR AVERAGE					
1.22±0.23±0.06	211	¹ DUBBS	94 E761	Ξ^- 375 GeV	
2.27±1.02	9	BIAGI	87B SPEC	SPS hyperon beam	
¹ DUBBS 94 also finds weak evidence that the asymmetry parameter α_γ is positive ($\alpha_\gamma = 1.0 \pm 1.3$).					

$\Gamma(\Lambda e^- \bar{\nu}_e)/\Gamma(\Lambda \pi^-)$					Γ_3/Γ_1
<i>VALUE</i> (units 10^{-3})	<i>EVTS</i>	<i>DOCUMENT ID</i>	<i>TECN</i>	<i>COMMENT</i>	
0.564 ± 0.031 OUR FIT					
0.564 ± 0.031	2857	BOURQUIN	83	SPEC	SPS hyperon beam
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.30 ± 0.13	11	THOMPSON	80	ASPK	Hyperon beam

$\Gamma(\Lambda\mu^-\bar{\nu}_\mu)/\Gamma(\Lambda\pi^-)$			Γ_4/Γ_1			
<i>VALUE</i> (units 10^{-3})	<i>CL%</i>	<i>EVTS</i>	<i>DOCUMENT ID</i>	<i>TECN</i>	<i>COMMENT</i>	
$0.35^{+0.35}_{-0.22}$ OUR FIT						
0.35 ± 0.35		1	YEH	74	HBC	Effective denom.=2859
• • • We do not use the following data for averages, fits, limits, etc. • • •						
< 2.3	90	0	THOMPSON	80	ASPK	Effective denom.=1017
< 1.3			DAUBER	69	HBC	
<12			BERGE	66	HBC	

$\Gamma(\Sigma^0 e^- \bar{\nu}_e)/\Gamma(\Lambda\pi^-)$ Γ_5/Γ_1

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
0.087 ± 0.017 OUR FIT				
0.087 ± 0.017	154	BOURQUIN	83	SPEC SPS hyperon beam

 $[\Gamma(\Lambda e^- \bar{\nu}_e) + \Gamma(\Sigma^0 e^- \bar{\nu}_e)]/\Gamma(\Lambda\pi^-)$ $(\Gamma_3 + \Gamma_5)/\Gamma_1$

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.651 ± 0.031	3011	¹ BOURQUIN	83	SPEC SPS hyperon beam
0.68 ± 0.22	17	² DUCLOS	71	OSPK

¹See the separate BOURQUIN 83 values for $\Gamma(\Lambda e^- \bar{\nu}_e)/\Gamma(\Lambda\pi^-)$ and $\Gamma(\Sigma^0 e^- \bar{\nu}_e)/\Gamma(\Lambda\pi^-)$ above.

²DUCLOS 71 cannot distinguish Σ^0 's from Λ 's. The Cabibbo theory predicts the Σ^0 rate is about a factor 6 smaller than the Λ rate.

 $\Gamma(\Sigma^0 \mu^- \bar{\nu}_\mu)/\Gamma(\Lambda\pi^-)$ Γ_6/Γ_1

VALUE (units 10^{-3})	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<0.76	90	0	YEH	74	HBC Effective denom.=3026
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<5			BERGE	66	HBC

 $\Gamma(\Xi^0 e^- \bar{\nu}_e)/\Gamma_{\text{total}}$ Γ_7/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
$<2.59 \times 10^{-4}$	90	ABLIKIM	21AH BES3	$J/\psi \rightarrow \Xi \bar{\Xi}$

 $\Gamma(\Xi^0 e^- \bar{\nu}_e)/\Gamma(\Lambda\pi^-)$ Γ_7/Γ_1

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$<2.3 \times 10^{-3}$	90	YEH	74	HBC Effective denom.=1000

 $\Gamma(n\pi^-)/\Gamma(\Lambda\pi^-)$ Γ_8/Γ_1

$\Delta S=2$. Forbidden in first-order weak interaction.

VALUE (units 10^{-3})	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<0.019	90		BIAGI	82B	SPEC SPS hyperon beam
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<3.0	90	0	YEH	74	HBC Effective denom.=760
<1.1			DAUBER	69	HBC
<5.0			FERRO-LUZZI	63	HBC

 $\Gamma(ne^- \bar{\nu}_e)/\Gamma(\Lambda\pi^-)$ Γ_9/Γ_1

$\Delta S=2$. Forbidden in first-order weak interaction.

VALUE (units 10^{-3})	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<3.2	90	0	YEH	74	HBC Effective denom.=715
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<10	90		BINGHAM	65	RVUE

$\Gamma(n\mu^-\bar{\nu}_\mu)/\Gamma(\Lambda\pi^-)$ Γ_{10}/Γ_1 $\Delta S=2$. Forbidden in first-order weak interaction.

VALUE (units 10^{-3})	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<15.3	90	0	YEH	74	HBC Effective denom.=150

 $\Gamma(p\pi^-\pi^-)/\Gamma(\Lambda\pi^-)$ Γ_{11}/Γ_1 $\Delta S=2$. Forbidden in first-order weak interaction.

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<3.7	90	0	YEH	74	HBC Effective denom.=6200

 $\Gamma(p\pi^-e^-\bar{\nu}_e)/\Gamma(\Lambda\pi^-)$ Γ_{12}/Γ_1 $\Delta S=2$. Forbidden in first-order weak interaction.

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<3.7	90	0	YEH	74	HBC Effective denom.=6200

 $\Gamma(p\pi^-\mu^-\bar{\nu}_\mu)/\Gamma(\Lambda\pi^-)$ Γ_{13}/Γ_1 $\Delta S=2$. Forbidden in first-order weak interaction.

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<3.7	90	0	YEH	74	HBC Effective denom.=6200

 $\Gamma(p\mu^-\mu^-)/\Gamma(\Lambda\pi^-)$ Γ_{14}/Γ_1 A $\Delta L=2$ decay, forbidden by total lepton number conservation.

VALUE (units 10^{-8})	CL%	DOCUMENT ID	TECN	COMMENT
<4.0	90	RAJARAM 05	HYCP	p Cu, 800 GeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

 $<3.7 \times 10^4$ 90 ¹ LITTENBERG 92B HBC Uses YEH 74 data

¹ This LITTENBERG 92B limit and the identical YEH 74 limits for the preceding three modes all result from nonobservance of any 3-prong decays of the Ξ^- . One could as well apply the limit to the *sum* of the four modes.

 Ξ DECAY PARAMETERS

See the “Note on Baryon Decay Parameters” in the neutron Listings.

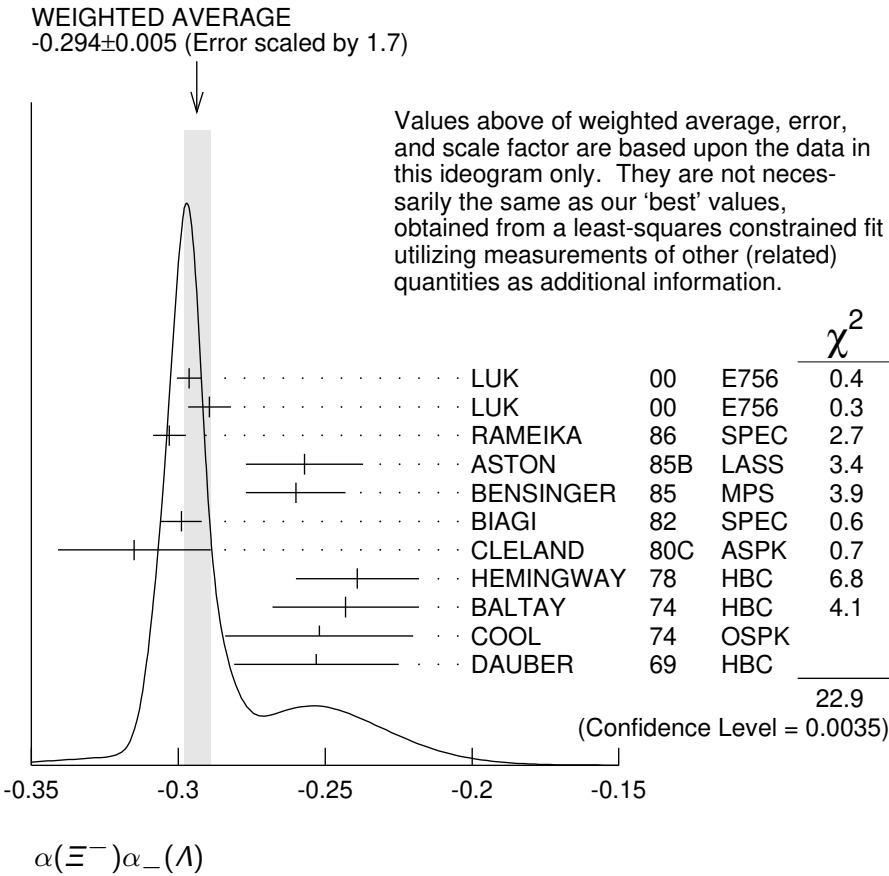
 $\alpha(\Xi^-)\alpha_-(\Lambda)$ OUR FIT value is obtained from measurements of $\alpha(\Xi^-)$, $\alpha_-(\Lambda)$, and $\alpha(\Xi^-)\alpha_-(\Lambda)$.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
-0.288 ± 0.005 OUR FIT				Error includes scale factor of 2.2.

-0.294 ± 0.005 OUR AVERAGE Error includes scale factor of 1.7. See the ideogram below.

-0.2963 ± 0.0042	189k	LUK	00	E756	p Be, 800 GeV
-0.2894 ± 0.0073	63k	¹ LUK	00	E756	p Be, 800 GeV
$-0.303 \pm 0.004 \pm 0.004$	192k	RAMEIKA	86	SPEC	400 GeV p Be
-0.257 ± 0.020	11k	ASTON	85B	LASS	11 GeV/ c $K^- p$
-0.260 ± 0.017	21k	BENSINGER	85	MPS	5 GeV/ c $K^- p$
-0.299 ± 0.007	150k	BIAGI	82	SPEC	SPS hyperon beam
-0.315 ± 0.026	9046	CLELAND	80C	ASPK	BNL hyperon beam
-0.239 ± 0.021	6599	HEMINGWAY	78	HBC	4.2 GeV/ c $K^- p$
-0.243 ± 0.025	4303	BALTAY	74	HBC	1.75 GeV/ c $K^- p$
-0.252 ± 0.032	2436	COOL	74	OSPK	1.8 GeV/ c $K^- p$
-0.253 ± 0.028	2781	DAUBER	69	HBC	

¹ This LUK 00 value is for $\alpha(\Xi^+) \alpha_+(\bar{\Lambda})$. We assume CP conservation here by including it in the average for $\alpha(\Xi^-) \alpha_-(\Lambda)$. But see the second data block below for the CP test.



$\alpha(\Xi^-)$ for $\Xi^- \rightarrow \Lambda \pi^-$

OUR FIT value is obtained from measurements of $\alpha(\Xi^-)$, $\alpha_-(\Lambda)$, and $\alpha(\Xi^-) \alpha_-(\Lambda)$.

VALUE	EVTs	DOCUMENT ID	TECN	COMMENT
-0.385±0.008 OUR FIT				Error includes scale factor of 2.4.

-0.367±0.004 ^{+0.003} _{-0.004}	144k	ABLIKIM	24AR BES3	$J/\psi \rightarrow \Xi \Xi \rightarrow \Lambda \bar{\Lambda} \pi \pi$
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• • • We do not use the following data for averages, fits, limits, etc. • • •

-0.376±0.007±0.003	73k	ABLIKIM	22AD BES3	$J/\psi \rightarrow \Xi \Xi \rightarrow \Lambda \bar{\Lambda} \pi \pi$
-0.344±0.025±0.007	5.4k	ABLIKIM	22BE BES3	$\psi(3686) \rightarrow \Xi \Xi \rightarrow \Lambda \bar{\Lambda} \pi \pi$

$\bar{\alpha}(\Xi^+)$ for $\Xi^+ \rightarrow \bar{\Lambda} \pi^+$

VALUE	EVTs	DOCUMENT ID	TECN	COMMENT
0.374±0.004^{+0.003}_{-0.004}	123k	ABLIKIM	24AR BES3	$J/\psi \rightarrow \Xi \Xi \rightarrow \Lambda \bar{\Lambda} \pi \pi$

• • • We do not use the following data for averages, fits, limits, etc. • • •

0.371±0.007±0.002	73k	ABLIKIM	22AD BES3	$J/\psi \rightarrow \Xi \Xi \rightarrow \Lambda \bar{\Lambda} \pi \pi$
0.355±0.025±0.002	5.4k	ABLIKIM	22BE BES3	$\psi(3686) \rightarrow \Xi \Xi \rightarrow \Lambda \bar{\Lambda} \pi \pi$

$(\alpha + \bar{\alpha}) / (\alpha - \bar{\alpha})$ for $\Xi^- \rightarrow \Lambda\pi^-$, $\Xi^+ \rightarrow \bar{\Lambda}\pi^+$

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
$-9 \pm 8 \pm 7$	267k	ABLIKIM	24AR BES3	$J/\psi \rightarrow \Xi\Xi \rightarrow \Lambda\bar{\Lambda}\pi\pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$6 \pm 13 \pm 6$	73k	ABLIKIM	22AD BES3	$J/\psi \rightarrow \Xi\Xi \rightarrow \Lambda\bar{\Lambda}\pi\pi$
$-15 \pm 51 \pm 10$	5.4k	ABLIKIM	22BE BES3	$\psi(3686) \rightarrow \Xi\Xi \rightarrow \Lambda\bar{\Lambda}\pi\pi$

$$\frac{[\alpha(\Xi^-)\alpha_-(\Lambda)-\bar{\alpha}\Xi^+\alpha_+(\bar{\Lambda})]}{[\alpha(\Xi^-)\alpha_-(\Lambda)+\bar{\alpha}\Xi^+\alpha_+(\bar{\Lambda})]}$$

This is zero if CP is conserved. The α 's are the decay-asymmetry parameters for $\Xi^- \rightarrow \Lambda\pi^-$ and $\Lambda \rightarrow p\pi^-$ and for $\Xi^+ \rightarrow \bar{\Lambda}\pi^+$ and $\bar{\Lambda} \rightarrow \bar{p}\pi^+$.

VALUE (units 10^{-4})	EVTS	DOCUMENT ID	TECN	COMMENT
$0.0 \pm 5.1 \pm 4.4$	158M	HOLMSTROM 04	HYCP	p Cu, 800 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$+120 \pm 140$	252k	LUK	00 E756	p Be, 800 GeV

 ϕ_- ANGLE FOR $\Xi^- \rightarrow \Lambda\pi^-$

$(\tan\phi = \beta/\gamma)$

VALUE ($^\circ$)	EVTS	DOCUMENT ID	TECN	COMMENT
-1.5 ± 0.6 OUR AVERAGE				
$-0.92 \pm 0.69^{+0.23}_{-0.46}$	144k	¹ ABLIKIM	24AR BES3	$J/\psi \rightarrow \Xi\Xi \rightarrow \Lambda\bar{\Lambda}\pi\pi$
$-2.39 \pm 0.64 \pm 0.64$	144M	² HUANG	04 HYCP	p Cu, 800 GeV
$-1.61 \pm 2.66 \pm 0.37$	1.35M	³ CHAKRAVO...	03 E756	p Be, 800 GeV
5 ± 10	11k	ASTON	85B LASS	$K^- p$
14.7 ± 16.0	21k	⁴ BENSINGER	85 MPS	5 GeV/c $K^- p$
11 ± 9	4303	BALTAY	74 HBC	1.75 GeV/c $K^- p$
5 ± 16	2436	COOL	74 OSPK	1.8 GeV/c $K^- p$
-14 ± 11	2781	DAUBER	69 HBC	Uses $\alpha_\Lambda = 0.647 \pm 0.020$
0 ± 12	1004	⁵ BERGE	66 HBC	
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.63 \pm 1.09 \pm 0.52$	73k	⁶ ABLIKIM	22AD BES3	$J/\psi \rightarrow \Xi\Xi \rightarrow \Lambda\bar{\Lambda}\pi\pi$
$1.32 \pm 4.24 \pm 0.17$	5.4k	⁷ ABLIKIM	22BE BES3	$\psi(3686) \rightarrow \Xi\Xi \rightarrow \Lambda\bar{\Lambda}\pi\pi$
-26 ± 30	2724	BINGHAM	70B OSPK	
0 ± 20.4	364	⁵ LONDON	66 HBC	Using $\alpha_\Lambda = 0.62$
54 ± 30	356	⁵ CARMONY	64B HBC	

¹ Converted from radians to degrees. ABLIKIM 22BE reports a value of $(-1.6 \pm 1.2^{+0.4}_{-0.8}) \times 10^{-2}$ radians.

² From this result and α_Ξ , HUANG 04 gets $\beta_\Xi = -0.037 \pm 0.011 \pm 0.010$ and $\gamma_\Xi = 0.888 \pm 0.0004 \pm 0.006$. And the strong p - s phase difference for $\Lambda\pi^-$ scattering is $(4.6 \pm 1.4 \pm 1.2)^\circ$.

³ From this result and α_Ξ , CHAKRAVORTY 03 obtains $\beta_\Xi = -0.025 \pm 0.042 \pm 0.006$ and $\gamma_\Xi = 0.889 \pm 0.001 \pm 0.007$. And the strong p - s phase difference for $\Lambda\pi^-$ scattering is $(3.17 \pm 5.28 \pm 0.73)^\circ$.

⁴ BENSINGER 85 used $\alpha_\Lambda = 0.642 \pm 0.013$.

⁵ The errors have been multiplied by 1.2 due to approximations used for the Ξ polarization; see DAUBER 69 for a discussion.

⁶ Converted from radians to degrees. ABLIKIM 22AD reports a value of $(1.1 \pm 1.9 \pm 0.9) \times 10^{-2}$ radians.

⁷ Converted from radians to degrees. ABLIKIM 22BE reports a value of $(2.3 \pm 7.4 \pm 0.3) \times 10^{-2}$ radians.

ϕ_+ ANGLE FOR $\Xi^+ \rightarrow \bar{\Lambda}\pi^+$ ($\tan\phi = \beta/\gamma$)

VALUE (°)	EVTS	DOCUMENT ID	TECN	COMMENT
$0.57 \pm 0.69^{+0.17}_{-0.75}$	123k	¹ ABLIKIM	24AR BES3	$J/\psi \rightarrow \Xi\Xi \rightarrow \Lambda\bar{\Lambda}\pi\pi$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$-1.20 \pm 1.09 \pm 0.40$	73k	² ABLIKIM	22AD BES3	$J/\psi \rightarrow \Xi\Xi \rightarrow \Lambda\bar{\Lambda}\pi\pi$
$-7.05 \pm 4.18 \pm 0.23$	5.4k	³ ABLIKIM	22BE BES3	$\psi(3686) \rightarrow \Xi\Xi \rightarrow \Lambda\bar{\Lambda}\pi\pi$

¹ Converted from radians to degrees. ABLIKIM 22BE reports a value of $(1.0 \pm 1.2^{+0.3}_{-1.3}) \times 10^{-2}$ radians.

² Converted from radians to degrees. ABLIKIM 22AD reports a value of $(-2.1 \pm 1.9 \pm 0.7) \times 10^{-2}$ radians.

³ Converted from radians to degrees. ABLIKIM 22BE reports a value of $(-12.3 \pm 7.3 \pm 0.4) \times 10^{-2}$ radians.

 $\Delta\phi_{CP} = (\phi_- + \phi_+)/2$

VALUE (°)	EVTS	DOCUMENT ID	TECN	COMMENT
$-0.17 \pm 0.46^{+0.17}_{-0.40}$	267k	¹ ABLIKIM	24AR BES3	$J/\psi \rightarrow \Xi\Xi \rightarrow \Lambda\bar{\Lambda}\pi\pi$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$-0.28 \pm 0.78 \pm 0.17$	73k	² ABLIKIM	22AD BES3	$J/\psi \rightarrow \Xi\Xi \rightarrow \Lambda\bar{\Lambda}\pi\pi$
$-2.86 \pm 2.98 \pm 0.17$	5.4k	³ ABLIKIM	22BE BES3	$\psi(3686) \rightarrow \Xi\Xi \rightarrow \Lambda\bar{\Lambda}\pi\pi$

¹ Converted from radians to degrees. ABLIKIM 22BE reports a value of $(-0.3 \pm 0.8^{+0.3}_{-0.7}) \times 10^{-2}$ radians.

² Converted from radians to degrees. ABLIKIM 22AD reports a value of $(-0.5 \pm 1.4 \pm 0.3) \times 10^{-2}$ radians.

³ Converted from radians to degrees. ABLIKIM 22BE reports a value of $(-5.0 \pm 5.2 \pm 0.3) \times 10^{-2}$ radians.

 g_A / g_V FOR $\Xi^- \rightarrow \Lambda e^- \bar{\nu}_e$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
-0.25 ± 0.05	1992	¹ BOURQUIN	83 SPEC	SPS hyperon beam

¹ BOURQUIN 83 assumes that $g_2 = 0$. Also, the sign has been changed to agree with our conventions, given in the "Note on Baryon Decay Parameters" in the neutron Listings.

 Ξ^- REFERENCES

We have omitted some papers that have been superseded by later experiments. See our earlier editions.

ABLIKIM	24AR	PRL 132 101801	M. Ablikim <i>et al.</i>	(BESIII Collab.)
ABLIKIM	22AD	NAT 606 64	M. Ablikim <i>et al.</i>	(BESIII Collab.)
ABLIKIM	22BE	PR D106 L091101	M. Ablikim <i>et al.</i>	(BESIII Collab.)
ABLIKIM	21AH	PR D104 072007	M. Ablikim <i>et al.</i>	(BESIII Collab.)
ABDALLAH	06E	PL B639 179	J. Abdallah <i>et al.</i>	(DELPHI Collab.)
RAJARAM	05	PRL 94 181801	D. Rajaram <i>et al.</i>	(FNAL HyperCP Collab.)
HOLMSTROM	04	PRL 93 262001	T. Holmstrom <i>et al.</i>	(FNAL HyperCP Collab.)
HUANG	04	PRL 93 011802	M. Huang <i>et al.</i>	(FNAL HyperCP Collab.)
CHAKRAVO...	03	PRL 91 031601	A. Chakravorty <i>et al.</i>	(FNAL E756 Collab.)
LUK	00	PRL 85 4860	K.B. Luk <i>et al.</i>	(FNAL E756 Collab.)
DUBBS	94	PRL 72 808	T. Dubbs <i>et al.</i>	(FNAL E761 Collab.)
DURYEA	92	PRL 68 768	J. Duryea <i>et al.</i>	(MINN, FNAL, MICH, RUTG)
LITTENBERG	92B	PR D46 892	L.S. Littenberg, R.E. Shrock	(BNL, STON)
HO	90	PRL 65 1713	P.M. Ho <i>et al.</i>	(MICH, FNAL, MINN, RUTG)
Also		PR D44 3402	P.M. Ho <i>et al.</i>	(MICH, FNAL, MINN, RUTG)

TROST	89	PR D40 1703	L.H. Trost <i>et al.</i>	(FNAL-715 Collab.)
BIAGI	87B	ZPHY C35 143	S.F. Biagi <i>et al.</i>	(BRIS, CERN, GEVA+)
RAMEIKA	86	PR D33 3172	R. Rameika <i>et al.</i>	(RUTG, MICH, WISC+)
ASTON	85B	PR D32 2270	D. Aston <i>et al.</i>	(SLAC, CARL, CNRC, CINC)
BENSINGER	85	NP B252 561	J.R. Bensinger <i>et al.</i>	(CHIC, ELMT, FNAL+)
BOURQUIN	84	NP B241 1	M.H. Bourquin <i>et al.</i>	(BRIS, GEVA, HEIDP+)
RAMEIKA	84	PRL 52 581	R. Rameika <i>et al.</i>	(RUTG, MICH, WISC+)
BOURQUIN	83	ZPHY C21 1	M.H. Bourquin <i>et al.</i>	(BRIS, GEVA, HEIDP+)
BIAGI	82	PL 112B 265	S.F. Biagi <i>et al.</i>	(BRIS, CAVE, GEVA+)
BIAGI	82B	PL 112B 277	S.F. Biagi <i>et al.</i>	(LOQM, GEVA, RL+)
CLELAND	80C	PR D21 12	W.E. Cleland <i>et al.</i>	(PITT, BNL)
THOMPSON	80	PR D21 25	J.A. Thompson <i>et al.</i>	(PITT, BNL)
BOURQUIN	79	PL 87B 297	M.H. Bourquin <i>et al.</i>	(BRIS, GEVA, HEIDP+)
HEMINGWAY	78	NP B142 205	R.J. Hemingway <i>et al.</i>	(CERN, ZEEM, NIJM+)
DIBIANCA	75	NP B98 137	F.A. Dibianca, R.J. Endorf	(CMU)
BALTAY	74	PR D9 49	C. Baltay <i>et al.</i>	(COLU, BING) J
COOL	74	PR D10 792	R.L. Cool <i>et al.</i>	(BNL)
Also		PRL 29 1630	R.L. Cool <i>et al.</i>	(BNL)
YEH	74	PR D10 3545	N. Yeh <i>et al.</i>	(BING, COLU)
MAYEUR	72	NP B47 333	C. Mayeur <i>et al.</i>	(BRUX, CERN, TUFTS, LOUC)
VOTRUBA	72	NP B45 77	M.F. Votruba, A. Safder, T.M. Ratcliffe	(BIRM+)
WILQUET	72	PL 42B 372	G. Wilquet <i>et al.</i>	(BRUX, CERN, TUFTS+)
DUCLOS	71	NP B32 493	J. Duclos <i>et al.</i>	(CERN)
BINGHAM	70B	PR D1 3010	G.M. Bingham <i>et al.</i>	(UCSD, WASH)
GOLDWASSER	70	PR D1 1960	E.L. Goldwasser, P.F. Schultz	(ILL)
STONE	70	PL 32B 515	S.L. Stone <i>et al.</i>	(ROCH)
DAUBER	69	PR 179 1262	P.M. Dauber <i>et al.</i>	(LRL) J
SHEN	67	PL 25B 443	B.C. Shen, A. Firestone, G. Goldhaber	(UCB+)
BERGE	66	PR 147 945	J.P. Berge <i>et al.</i>	(LRL)
CHIEN	66	PR 152 1171	C.Y. Chien <i>et al.</i>	(YALE, BNL)
LONDON	66	PR 143 1034	G.W. London <i>et al.</i>	(BNL, SYRA)
BINGHAM	65	PRSL 285 202	H.H. Bingham	(CERN)
PJERROU	65B	PRL 14 275	G.M. Pjerrou <i>et al.</i>	(UCLA)
Also		Thesis	G.M. Pjerrou	(UCLA)
BADIER	64	Dubna Conf. 1 593	J. Badier <i>et al.</i>	(EPOL, SACL, ZEEM)
CARMONY	64B	PRL 12 482	D.D. Carmony <i>et al.</i>	(UCLA) J
HUBBARD	64	PR 135 B183	J.R. Hubbard <i>et al.</i>	(LRL)
FERRO-LUZZI	63	PR 130 1568	M. Ferro-Luzzi <i>et al.</i>	(LRL)
JAUNEAU	63D	Siena Conf. 4	L. Jauneau <i>et al.</i>	(EPOL, CERN, LOUC+)
Also		PL 5 261	L. Jauneau <i>et al.</i>	(EPOL, CERN, LOUC+)
SCHNEIDER	63	PL 4 360	J. Schneider	(CERN)