Ξ^-

$I(J^P) = \frac{1}{2}(\frac{1}{2}^+)$ 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We have omitted some results that have been superseded by later experiments.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^-, $\overline{\Xi}^+$, and Ξ^0 masses and the $\Xi^- - \overline{\Xi}^+$ mass difference. It assumes that the Ξ^- and $\overline{\Xi}^+$ 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 $\overline{p} p$
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_Λ = 1115.58 MeV.

[2] These masses have been increased 0.09 MeV because the Λ mass increased.

$\overline{\Xi}^+$ MASS

The fit uses the Ξ^-, $\overline{\Xi}^+$, and Ξ^0 masses and the $\Xi^- - \overline{\Xi}^+$ mass difference. It assumes that the Ξ^- and $\overline{\Xi}^+$ 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 $\overline{p} p$

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

A test of CPT invariance.

VALUE	DOCUMENT ID		TECN	COMMENT
$(-2.5\pm8.7) \times 10^{-5}$	ABDALLAH	06E	DLPH	from Z decays

Ξ^- MEAN LIFE

Measurements with an error > 0.2×10^{-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	

$\overline{\Xi}^+$ MEAN LIFE

VALUE (10^{-10} s)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.70±0.08±0.12	2256 ± 63	ABDALLAH	06E	DLPH	from Z decays
• • • We do not use the following data for averages, fits, limits, etc. • • •					
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 $\overline{p} p$

[1] The error is statistical only.

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

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	Ξ^- ∼ 250 GeV
−0.69 ±0.04	218k	RAMEIKA	84	SPEC	400 GeV pBe

• • • 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 $K^- p$

$\overline{\Xi}^+$ 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 pBe

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

A test of *CPT* invariance. We calculate this from the Ξ^- and $\overline{\Xi}^+$ 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	$\Lambda e^- \overline{\nu}_e$		(5.63 ±0.31) × 10^{-4}	
Γ_4	$\Lambda\mu^- \overline{\nu}_\mu$		(3.5 $^{+3.5}_{-2.2}$) × 10^{-4}	
Γ_5	$\Sigma^0 e^- \overline{\nu}_e$		(8.7 ±1.7) × 10^{-5}	
Γ_6	$\Sigma^0 \mu^- \overline{\nu}_\mu$		< 8 × 10^{-4}	90%
Γ_7	$\Xi^0 e^- \overline{\nu}_e$		< 2.59 × 10^{-4}	90%
	$\Delta S = 2$ forbidden (*S2*) modes			
Γ_8	$n\pi^-$	*S2*	< 1.9 × 10^{-5}	90%
Γ_9	$n e^- \overline{\nu}_e$	*S2*	< 3.2 × 10^{-3}	90%
Γ_{10}	$n\mu^- \overline{\nu}_\mu$	*S2*	< 1.5 %	90%
Γ_{11}	$p\pi^-\pi^-$	*S2*	< 4 × 10^{-4}	90%
Γ_{12}	$p\pi^- e^- \overline{\nu}_e$	*S2*	< 4 × 10^{-4}	90%
Γ_{13}	$p\pi^-\mu^- \overline{\nu}_\mu$	*S2*	< 4 × 10^{-4}	90%
Γ_{14}	$p\mu^-\mu^-$	*L*	< 4 × 10^{-8}	90%
Γ_{15}	π^- invisible		not seen	

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 $\left\langle\delta x_i \delta x_j\right\rangle/(\delta x_i \cdot \delta x_j)$, 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

VALUE (units 10^{-4})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
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 ($\alpha_\gamma = 1.0 \pm 1.3$).

$\Gamma(\Lambda e^-\overline{\nu}_e)/\Gamma(\Lambda\pi^-)$ — Γ_3/Γ_1

VALUE (units 10^{-3})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
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

$\Gamma(\Lambda\mu^-\overline{\nu}_\mu)/\Gamma(\Lambda\pi^-)$ — Γ_4/Γ_1

VALUE (units 10^{-3})	*CL%*	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.35^{+0.35}_{-0.22}$ 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	

$\Gamma(\Sigma^0 e^- \overline{\nu}_e)/\Gamma(\Lambda\pi^-)$ — 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

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

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	

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

[2] DUCLOS 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.

$\Gamma(\Sigma^0 \mu^- \overline{\nu}_\mu)/\Gamma(\Lambda\pi^-)$ — 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	

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

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

$\Gamma(\Xi^0 e^- \overline{\nu}_e)/\Gamma(\Lambda\pi^-)$ — 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

ΔS=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	

$\Gamma(n e^- \overline{\nu}_e)/\Gamma(\Lambda\pi^-)$ — Γ_9/Γ_1

ΔS=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	

$\Gamma(n \mu^- \overline{\nu}_\mu)/\Gamma(\Lambda\pi^-)$ — Γ_{10}/Γ_1

ΔS=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

ΔS=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

$\Gamma(p\pi^- e^-\overline{\nu}_e)/\Gamma(\Lambda\pi^-)$ Γ_{12}/Γ_1

ΔS=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

$\Gamma(p\pi^-\mu^-\overline{\nu}_\mu)/\Gamma(\Lambda\pi^-)$ Γ_{13}/Γ_1

ΔS=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 ΔL=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.

$\Gamma(\pi^-\text{ invisible})/\Gamma_{\text{total}}$ Γ_{15}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	[1] ABLIKIM	25CQ	BES3	$J/\psi \to \Xi\overline{\Xi}$

[1] ABLIKIM 25CQ reports branching fraction limits ranging from 8×10^{-4} to 5×10^{-5} at 95% CL over the mass range 1.07–1.16 GeV for the invisible particle.

Ξ DECAY PARAMETERS

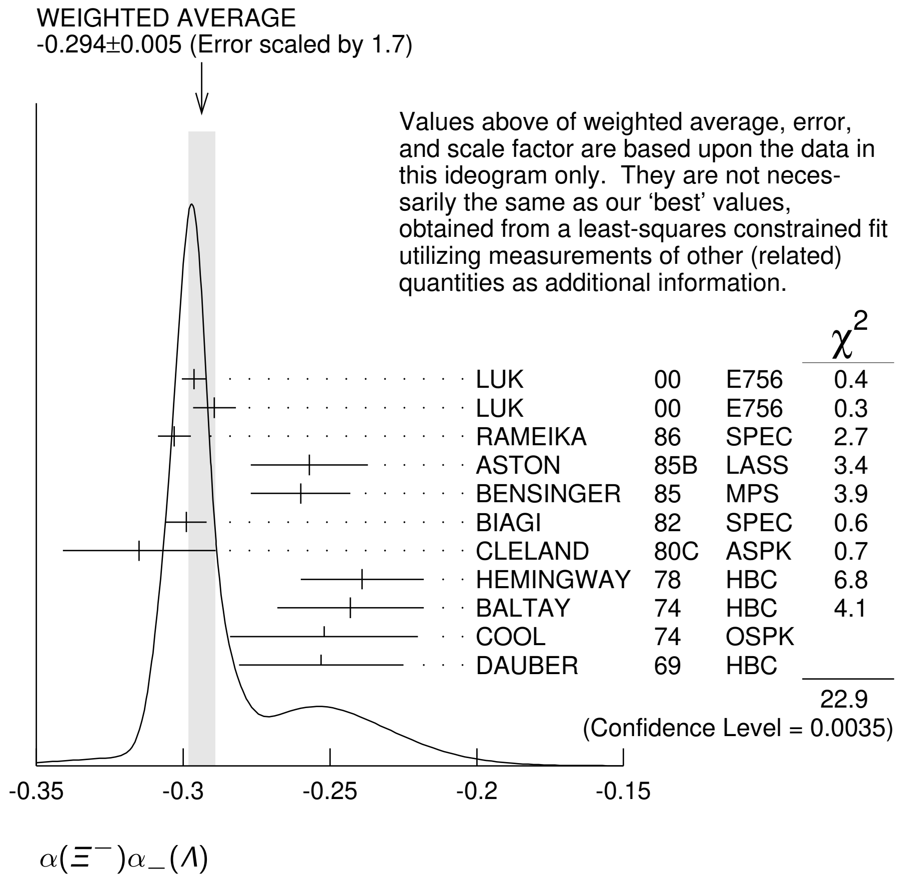
See the "Note on Baryon Decay Parameters" in the neutron Listings.

$\alpha(\Xi^-)\alpha_-(\Lambda)$

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 ±0.004 ±0.004	192k	RAMEIKA	86	SPEC	400 GeV pBe
−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 $\alpha(\overline{\Xi}^+)\ \alpha_+(\overline{\Lambda})$. 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 $\Xi^- \to \Lambda\pi^-$

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

VALUE	*EVTS*	*DOCUMENT ID*	*TECN*	*COMMENT*
$-$0.385$\pm$0.008 OUR FIT	Error includes scale factor of 2.4.			
$-0.367\pm0.004^{+0.003}_{-0.004}$	144k	ABLIKIM	24AR BES3	$J/\psi \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.376\pm0.007\pm0.003$	73k	ABLIKIM	22AD BES3	$J/\psi \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$
$-0.344\pm0.025\pm0.007$	5.4k	ABLIKIM	22BE BES3	$\psi(3686) \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$

$\overline{\alpha}(\overline{\Xi}^+)$ for $\overline{\Xi}^+ \to \overline{\Lambda}\pi^+$

VALUE	*EVTS*	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.374\pm0.004^{+0.003}_{-0.004}$	123k	ABLIKIM	24AR BES3	$J/\psi \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.371\pm0.007\pm0.002$	73k	ABLIKIM	22AD BES3	$J/\psi \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$
$0.355\pm0.025\pm0.002$	5.4k	ABLIKIM	22BE BES3	$\psi(3686) \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$

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

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
$-9\pm 8^{+7}_{-2}$	267k	ABLIKIM 24AR	BES3	$J/\psi \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$6\pm13\pm 6$	73k	ABLIKIM 22AD	BES3	$J/\psi \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$
$-15\pm51\pm10$	5.4k	ABLIKIM 22BE	BES3	$\psi(3686) \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$

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

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

VALUE (units 10^{-4})	EVTS	DOCUMENT ID	TECN	COMMENT
$0.0\pm 5.1\pm4.4$	158M	HOLMSTROM 04	HYCP	p Cu, 800 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$+120 \pm140$	252k	LUK 00	E756	p Be, 800 GeV

ϕ_- ANGLE FOR $\Xi^- \to \Lambda\pi^-$ $(\tan\phi = \beta/\gamma)$

VALUE (°)	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	$J/\psi \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$
$-2.39\pm 0.64\pm0.64$	144M	[2] HUANG 04	HYCP	p Cu, 800 GeV
$-1.61\pm 2.66\pm0.37$	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. • • •				
$0.63\pm 1.09\pm0.52$	73k	[6] ABLIKIM 22AD	BES3	$J/\psi \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$
$1.32\pm 4.24\pm0.17$	5.4k	[7] ABLIKIM 22BE	BES3	$\psi(3686) \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$
-26 ± 30	2724	BINGHAM 70B	OSPK	
0 ± 20.4	364	[5] LONDON 66	HBC	Using α_Λ=0.62
54 ± 30	356	[5] CARMONY 64B	HBC	

[1] Converted from radians to degrees. ABLIKIM 22BE reports a value of $(-1.6\pm1.2^{+0.4}_{-0.8})\times 10^{-2}$ 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 $(4.6 \pm 1.4 \pm 1.2)°$.

[3] From this result and α_Ξ, CHAKRAVORTY 03 obtains $\beta_\Xi = -0.025 \pm 0.042 \pm 0.006$ and $\gamma_\Xi = 0.889\pm0.001\pm0.007$. And the strong p–s phase difference for $\Lambda\pi^-$ scattering is $(3.17 \pm 5.28 \pm 0.73)°$.

[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 $(1.1\pm1.9\pm0.9)\times 10^{-2}$ radians.

[7] Converted from radians to degrees. ABLIKIM 22BE reports a value of $(2.3\pm7.4\pm0.3)\times 10^{-2}$ radians.

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

VALUE (°)	EVTS	DOCUMENT ID	TECN	COMMENT
$0.57 \pm 0.69^{+0.17}_{-0.75}$	123k	[1] ABLIKIM 24AR	BES3	$J/\psi \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$
• • • 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	$J/\psi \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$
$-7.05 \pm 4.18 \pm 0.23$	5.4k	[3] ABLIKIM 22BE	BES3	$\psi(3686) \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$

[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	$J/\psi \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$
• • • 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	$J/\psi \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$
$-2.86 \pm 2.98 \pm 0.17$	5.4k	[3] ABLIKIM 22BE	BES3	$\psi(3686) \to \Xi\overline{\Xi} \to \Lambda\overline{\Lambda}\pi\pi$

[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 $\Xi^- \to \Lambda e^- \overline{\nu}_e$

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.

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ABLIKIM	24AR	PRL 132 101801	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	22AD	NAT 606 64	M. Ablikim *et al.*	(BESIII Collab.)
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ABLIKIM	21AH	PR D104 072007	M. Ablikim *et al.*	(BESIII Collab.)
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