NODE=M028

$K_1(1270)$

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

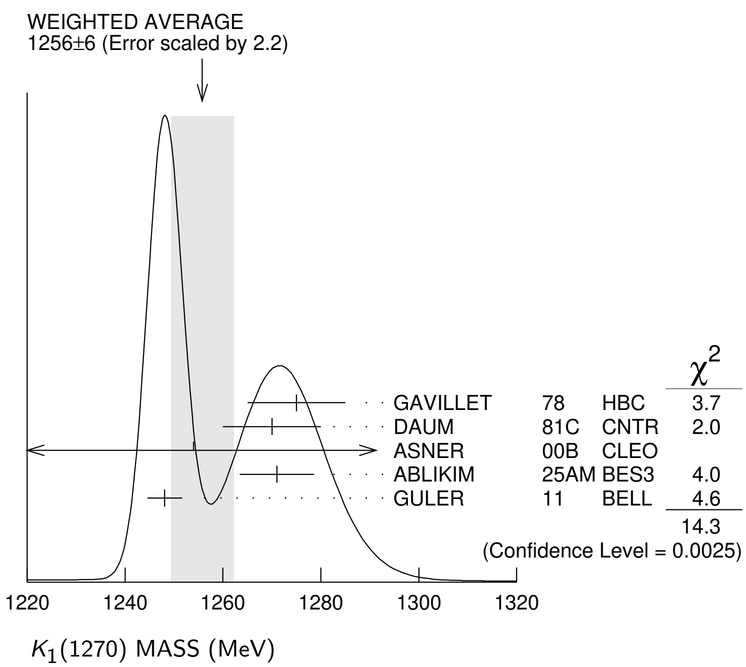
$K_1(1270)$ MASS

NODE=M028MX

NODE=M028MX
NEW

VALUE (MeV)	*DOCUMENT ID*

1256±6 OUR AVERAGE Includes data from the 4 datablocks that follow this one. Error includes scale factor of 2.2. See the ideogram below. [1253 ± 7 MeV OUR 2025 AVERAGE Scale factor = 2.2]



PRODUCED BY K^-, BACKWARD SCATTERING, HYPERON EXCHANGE

NODE=M028M2
NODE=M028M2

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*

The data in this block is included in the average printed for a previous datablock.

1275±10	700	GAVILLET	78	HBC	+	4.2 $K^- p \to \Xi^- (K\pi\pi)^+$

PRODUCED BY K BEAMS

NODE=M028M3
NODE=M028M3

The data in this block is included in the average printed for a previous datablock.

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1270±10	[1] DAUM	81C	CNTR	−	63 $K^- p \to K^- 2\pi p$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
∼ 1276	[2] TORNQVIST	82B	RVUE		
∼ 1300	VERGEEST	79	HBC	−	4.2 $K^- p \to (\overline{K}\pi\pi)^- p$
1289±25	[3] CARNEGIE	77	ASPK	±	13 $K^\pm p \to (K\pi\pi)^\pm p$
∼ 1300	BRANDENB...	76	ASPK	±	13 $K^\pm p \to (K\pi\pi)^\pm p$
∼ 1270	OTTER	76	HBC	−	10,14,16 $K^- p \to (\overline{K}\pi\pi)^- p$
1260	DAVIS	72	HBC	+	12 $K^+ p$
1234±12	FIRESTONE	72B	DBC	+	12 $K^+ d$

[1] Well described in the chiral unitary approach of GENG 07 with two poles at 1195 and 1284 MeV and widths of 246 and 146 MeV, respectively.
NODE=M028M3;LINKAGE=DA

[2] From a unitarized quark-model calculation.
NODE=M028M3;LINKAGE=T

[3] From a model-dependent fit with Gaussian background to BRANDENBURG 76 data.
NODE=M028M3;LINKAGE=E

PRODUCED BY BEAMS OTHER THAN K MESONS

NODE=M028M1
NODE=M028M1

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*

The data in this block is included in the average printed for a previous datablock.

1252 ± 9 OUR AVERAGE Error includes scale factor of 2.7. [1248 ± 4 MeV OUR 2025 AVERAGE]
NEW

1271 ± 3 ±7		[1] ABLIKIM	25AM	BES3	$D^{+(0)} \to K^- \pi^+ \pi^{0(-)} e^+ \nu_e$
1248.1 ± 3.3 ±1.4		GULER	11	BELL	$B^+ \to J/\psi K^+ \pi^+ \pi^-$

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

1289.81± 0.56±1.66	894k		AAIJ	18AI	LHCB	$D^0 \rightarrow K^{\mp}\pi^{\pm}\pi^{\pm}\pi^{\mp}$
1279 ±10	25k	[2]	ABLIKIM	06C	BES2	$J/\psi \rightarrow \overline{K}^*(892)^0 K^+ \pi^-$
1294 ±10	310		RODEBACK	81	HBC	$4\ \pi^- p \rightarrow \Lambda K 2\pi$
1300	40		CRENNELL	72	HBC	$4.5\ \pi^- p \rightarrow \Lambda K 2\pi$
1242 $^{+\ 9}_{-10}$		[3]	ASTIER	69	HBC	$\overline{p} p$
1300	45		CRENNELL	67	HBC	$6\ \pi^- p \rightarrow \Lambda K 2\pi$

[1] Using the relativistic Breit-Wigner parameterization in the amplitude analysis. NODE=M028M1;LINKAGE=C

[2] Systematic errors not estimated. NODE=M028M1;LINKAGE=AB

[3] This was called the C meson. NODE=M028M1;LINKAGE=A

PRODUCED IN τ LEPTON DECAYS

NODE=M028MT
NODE=M028MT

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
The data in this block is included in the average printed for a previous datablock.						
1254±33±34	7k	ASNER	00B	CLEO	±	$\tau^- \rightarrow K^- \pi^+ \pi^- \nu_\tau$

$K_1(1270)$ WIDTH

NODE=M028WX

VALUE (MeV)	*DOCUMENT ID*

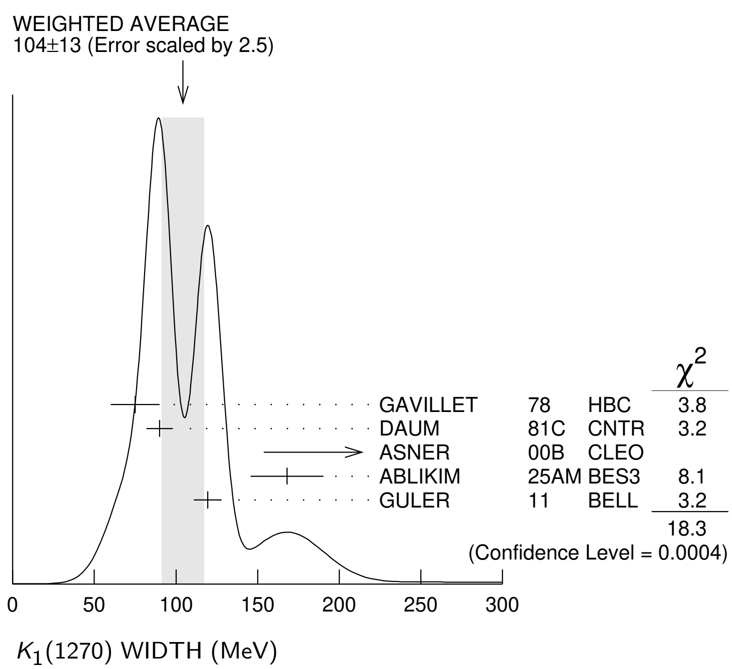
NODE=M028WX

90±20 OUR ESTIMATE This is only an educated guess; the error given is larger than the error on the average of the published values.

→ UNCHECKED ←

104±13 OUR AVERAGE Includes data from the 4 datablocks that follow this one. Error includes scale factor of 2.5. See the ideogram below. [101 ± 12 MeV OUR 2025 AVERAGE Scale factor = 2.2]

NEW



PRODUCED BY K^-, BACKWARD SCATTERING, HYPERON EXCHANGE

NODE=M028W2
NODE=M028W2

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
The data in this block is included in the average printed for a previous datablock.						
75±15	700	GAVILLET	78	HBC	+	$4.2\ K^- p \rightarrow \Xi^- K \pi\pi$

PRODUCED BY K BEAMS

NODE=M028W3
NODE=M028W3

VALUE (MeV)		*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
The data in this block is included in the average printed for a previous datablock.						
90± 8	[1]	DAUM	81C	CNTR	−	$63\ K^- p \rightarrow K^- 2\pi p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
∼ 150		VERGEEST	79	HBC	−	$4.2\ K^- p \rightarrow (\overline{K}\pi\pi)^- p$
150±71	[2]	CARNEGIE	77	ASPK	±	$13\ K^\pm p \rightarrow (K\pi\pi)^\pm p$
∼ 200		BRANDENB...	76	ASPK	±	$13\ K^\pm p \rightarrow (K\pi\pi)^\pm p$
120		DAVIS	72	HBC	+	$12\ K^+ p$
188±21		FIRESTONE	72B	DBC	+	$12\ K^+ d$

[1] Well described in the chiral unitary approach of GENG 07 with two poles at 1195 and 1284 MeV and widths of 246 and 146 MeV, respectively. NODE=M028W3;LINKAGE=DA
[2] From a model-dependent fit with Gaussian background to BRANDENBURG 76 data. NODE=M028W3;LINKAGE=E

PRODUCED BY BEAMS OTHER THAN K MESONS

NODE=M028W1
NODE=M028W1

The data in this block is included in the average printed for a previous datablock.

126 ±16 OUR AVERAGE Error includes scale factor of 2.0. [120 ± 8 MeV OUR 2025 AVERAGE] NEW

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
168 ±10 ±20		[1] ABLIKIM	25AM	BES3	$D^{+(0)} \to K^- \pi^+ \pi^{0(-)} e^+ \nu_e$
119.5 ± 5.2 ± 6.7		GULER	11	BELL	$B^+ \to J/\psi K^+ \pi^+ \pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
116.11± 1.65± 2.96	894k	AAIJ	18AI	LHCB	$D^0 \to K^\mp \pi^\pm \pi^\pm \pi^\mp$
131 ±21	25k	[2] ABLIKIM	06C	BES2	$J/\psi \to \overline{K}^*(892)^0 K^+ \pi^-$
66 ±15	310	RODEBACK	81	HBC	$4\ \pi^- p \to \Lambda K 2\pi$
60	40	CRENNELL	72	HBC	$4.5\ \pi^- p \to \Lambda K 2\pi$
127 $^{+7}_{-25}$		ASTIER	69	HBC	$\overline{p} p$
60	45	CRENNELL	67	HBC	$6\ \pi^- p \to \Lambda K 2\pi$

[1] Using the relativistic Breit-Wigner parameterization in the amplitude analysis. NODE=M028W1;LINKAGE=B
[2] Systematic errors not estimated. NODE=M028W1;LINKAGE=AB

PRODUCED IN τ LEPTON DECAYS

NODE=M028WT
NODE=M028WT

The data in this block is included in the average printed for a previous datablock.

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
$260^{+90}_{-70} \pm 80$	7k	ASNER	00B	CLEO	±	$\tau^- \to K^- \pi^+ \pi^- \nu_\tau$

K_1(1270) DECAY MODES

NODE=M028215;NODE=M028

	Mode	Fraction (Γ_i/Γ)	Scale factor	
Γ_1	$K\rho$	(53 ±8) %	2.1	DESIG=2
Γ_2	$K_0^*(1430)\pi$	(14 ±8) %	4.0	DESIG=7
Γ_3	$K^*(892)\pi$	(18 ±4) %	1.2	DESIG=1
Γ_4	$K\omega$	(9.6±2.1) %	1.3	DESIG=5
Γ_5	$K f_0(1370)$	(3.0±2.0) %		DESIG=8
Γ_6	γK^0	seen		DESIG=9;OUR EST;→ UNCHECKED ←

K_1(1270) PARTIAL WIDTHS

NODE=M028220

$\Gamma(K\rho)$ Γ_1

NODE=M028W5
NODE=M028W5

VALUE (MeV)	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
57±5	MAZZUCATO	79	HBC	+	$4.2\ K^- p \to \Xi^- (K\pi\pi)^+$
75±6	CARNEGIE	77B	ASPK	±	$13\ K^\pm p \to (K\pi\pi)^\pm p$

$\Gamma(K_0^*(1430)\pi)$ Γ_2

NODE=M028W7
NODE=M028W7

VALUE (MeV)	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
26±6	CARNEGIE	77B	ASPK	±	$13\ K^\pm p \to (K\pi\pi)^\pm p$

$\Gamma(K^*(892)\pi)$ Γ_3

NODE=M028W4
NODE=M028W4

VALUE (MeV)	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
14±11	MAZZUCATO	79	HBC	+	$4.2\ K^- p \to \Xi^- (K\pi\pi)^+$
2± 2	CARNEGIE	77B	ASPK	±	$13\ K^\pm p \to (K\pi\pi)^\pm p$

$\Gamma(K\omega)$ Γ_4

NODE=M028W6
NODE=M028W6

VALUE (MeV)	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
4±4	MAZZUCATO	79	HBC	+	$4.2\ K^- p \to \Xi^- (K\pi\pi)^+$
24±3	CARNEGIE	77B	ASPK	±	$13\ K^\pm p \to (K\pi\pi)^\pm p$

$\Gamma(K f_0(1370))$ Γ_5

NODE=M028W8

VALUE (MeV)	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
22 ± 5	CARNEGIE	77B	ASPK	$\pm$	13 $K^{\pm} p \rightarrow (K\pi\pi)^{\pm} p$

$\Gamma(\gamma K^0)$ Γ_6

NODE=M028W9

VALUE (keV)	DOCUMENT ID		TECN	COMMENT
73.2±6.1±28.3	ALAVI-HARATI	02B	KTEV	$K + A \rightarrow K^* + A$

$K_1(1270)$ BRANCHING RATIOS

NODE=M028225

$\Gamma(K\rho)/\Gamma_{total}$ Γ_1/Γ

NODE=M028R2

0.53 ±0.08 OUR FIT Error includes scale factor of 2.1. [0.38 ± 0.13 OUR 2025 FIT Scale factor = 2.2] NEW

0.53 ±0.08 OUR AVERAGE Error includes scale factor of 2.2. [0.42 ± 0.06 OUR 2025 AVERAGE] NEW

VALUE	DOCUMENT ID		TECN	COMMENT
0.588 ± 0.045	AAIJ	25Q	LHCB	$B^+ \rightarrow \psi(2S) K^+ \pi^+ \pi^-$
0.42 ± 0.06	[1] DAUM	81C	CNTR	63 $K^- p \rightarrow K^- 2\pi p$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.584 ± 0.043	[2] GULER	11	BELL	$B^+ \rightarrow J/\psi K^+ \pi^+ \pi^-$
dominant	RODEBACK	81	HBC	4 $\pi^- p \rightarrow \Lambda K 2\pi$

$\Gamma(K_0^*(1430)\pi)/\Gamma_{total}$ Γ_2/Γ

NODE=M028R4

0.14 ±0.08 OUR AVERAGE Error includes scale factor of 4.0. [0.28 ± 0.04 OUR 2025 AVERAGE] NEW

VALUE	DOCUMENT ID		TECN	COMMENT
0.099 ± 0.022	AAIJ	25Q	LHCB	$B^+ \rightarrow \psi(2S) K^+ \pi^+ \pi^-$
0.28 ± 0.04	[1] DAUM	81C	CNTR	63 $K^- p \rightarrow K^- 2\pi p$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.0201 ± 0.0064	[2] GULER	11	BELL	$B^+ \rightarrow J/\psi K^+ \pi^+ \pi^-$

$\Gamma(K^*(892)\pi)/\Gamma_{total}$ Γ_3/Γ

NODE=M028R1

0.18 ±0.04 OUR FIT Error includes scale factor of 1.2. [0.21 ± 0.10 OUR 2025 FIT Scale factor = 2.2] NEW

0.19 ±0.04 OUR AVERAGE Error includes scale factor of 1.1. [0.16 ± 0.05 OUR 2025 AVERAGE] NEW

VALUE	DOCUMENT ID		TECN	COMMENT
0.250 ± 0.063	AAIJ	25Q	LHCB	$B^+ \rightarrow \psi(2S) K^+ \pi^+ \pi^-$
0.16 ± 0.05	[1] DAUM	81C	CNTR	63 $K^- p \rightarrow K^- 2\pi p$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.171 ± 0.023	[2] GULER	11	BELL	$B^+ \rightarrow J/\psi K^+ \pi^+ \pi^-$

$\Gamma(K^*(892)\pi)/\Gamma(K\rho)$ Γ_3/Γ_1

NODE=M028R00

0.34 ±0.08 OUR FIT Error includes scale factor of 1.5. [0.56 ± 0.29 OUR 2025 FIT Scale factor = 2.2] NEW

0.30 ±0.26 OUR AVERAGE Error includes scale factor of 3.1. [0.99 ± 0.23 OUR 2025 AVERAGE] NEW

VALUE	DOCUMENT ID		TECN	COMMENT
$0.203\pm0.021\pm0.087$	ABLIKIM	25AM	BES3	$D^{+(0)} \rightarrow K^- \pi^+ \pi^{0(-)} e^+ \nu_e$
$0.99\pm0.15\pm0.18$	ABLIKIM	21U	BES3	$D_s^+ \rightarrow \overline{K}_1(1270)^0 K^+$

$\Gamma(K\omega)/\Gamma_{total}$ Γ_4/Γ

NODE=M028R3

0.096±0.021 OUR AVERAGE Error includes scale factor of 1.3. [0.11 ± 0.02 OUR 2025 AVERAGE] NEW

VALUE	DOCUMENT ID		TECN	COMMENT
0.063 ± 0.031	AAIJ	25Q	LHCB	$B^+ \rightarrow \psi(2S) K^+ \pi^+ \pi^-$
0.11 ± 0.02	[1] DAUM	81C	CNTR	63 $K^- p \rightarrow K^- 2\pi p$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.225 ± 0.052	[2] GULER	11	BELL	$B^+ \rightarrow J/\psi K^+ \pi^+ \pi^-$

$\Gamma(K\omega)/\Gamma(K\rho)$ Γ_4/Γ_1

NODE=M028R6

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.30	95	RODEBACK	81	HBC	4 $\pi^- p \rightarrow \Lambda K 2\pi$

$\Gamma(K f_0(1370))/\Gamma_{total}$ Γ_5/Γ

NODE=M028R5
NODE=M028R5

VALUE	DOCUMENT ID	TECN	COMMENT
0.03±0.02	[1] DAUM 81C	CNTR	63 $K^- p \rightarrow K^- 2\pi p$

D-wave/S-wave RATIO FOR $K_1(1270) \rightarrow K^*(892)\pi$

NODE=M028R9
NODE=M028R9

VALUE	DOCUMENT ID	TECN	COMMENT
1.0±0.7	[1] DAUM 81C	CNTR	63 $K^- p \rightarrow K^- 2\pi p$

[1] Average from low and high t data.

NODE=M028R;LINKAGE=F

[2] Assuming that decays are saturated by the $K\rho$, $K_0^*(1430)\pi$, $K^*(892)\pi$, $K\omega$ decay modes and neglecting interference between them. The values $B(\omega \rightarrow \pi^+\pi^-) = (1.53^{+0.11}_{-0.13})\%$ and $B(K_0^*(1430) \rightarrow K\pi) = (93 \pm 10)\%$ are used. Systematic uncertainties not estimated.

NODE=M028R1;LINKAGE=GU

$K_1(1270)$ REFERENCES

NODE=M028

AAIJ	25Q	JHEP 2501 054	R. Aaij *et al.*	(LHCb Collab.)	REFID=63427
ABLIKIM	25AM	PRL 135 091801	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63297
ABLIKIM	21U	PR D104 032011	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61155
AAIJ	18AI	EPJ C78 443	R. Aaij *et al.*	(LHCb Collab.)	REFID=59187
GULER	11	PR D83 032005	H. Guler *et al.*	(BELLE Collab.)	REFID=53668
GENG	07	PR D75 014017	L.S. Geng *et al.*		REFID=51623
ABLIKIM	06C	PL B633 681	M. Ablikim *et al.*	(BES Collab.)	REFID=51037
ALAVI-HARATI	02B	PRL 89 072001	A. Alavi-Harati *et al.*	(FNAL KTeV Collab.)	REFID=48822
ASNER	00B	PR D62 072006	D.M. Asner *et al.*	(CLEO Collab.)	REFID=47766
TORNQVIST	82B	NP B203 268	N.A. Tornqvist	(HELS)	REFID=20573
DAUM	81C	NP B187 1	C. Daum *et al.*	(AMST, CERN, CRAC, MPIM+)	REFID=22548
RODEBACK	81	ZPHY C9 9	S. Rodeback *et al.*	(CERN, CDEF, MADR+)	REFID=22550
MAZZUCATO	79	NP B156 532	M. Mazzucato *et al.*	(CERN, ZEEM, NIJM+)	REFID=20867
VERGEEST	79	NP B158 265	J.S.M. Vergeest *et al.*	(NIJM, AMST, CERN+)	REFID=22542
GAVILLET	78	PL 76B 517	P. Gavillet *et al.*	(AMST, CERN, NIJM+) JP	REFID=22538
CARNEGIE	77	NP B127 509	R.K. Carnegie *et al.*	(SLAC)	REFID=22535
CARNEGIE	77B	PL 68B 287	R.K. Carnegie *et al.*	(SLAC)	REFID=22536
BRANDENB...	76	PRL 36 703	G.W. Brandenburg *et al.*	(SLAC) JP	REFID=22532
OTTER	76	NP B106 77	G. Otter *et al.*	(AACH3, BERL, CERN, LOIC+) JP	REFID=22533
CRENNELL	72	PR D6 1220	D.J. Crennell *et al.*	(BNL)	REFID=22419
DAVIS	72	PR D5 2688	P.J. Davis *et al.*	(LBL)	REFID=22505
FIRESTONE	72B	PR D5 505	A. Firestone *et al.*	(LBL)	REFID=22506
ASTIER	69	NP B10 65	A. Astier *et al.*	(CDEF, CERN, IPNP, LIVP) IJP	REFID=22482
CRENNELL	67	PRL 19 44	D.J. Crennell *et al.*	(BNL) I	REFID=22473