

K₂(1770)

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

See our mini-review in the 2004 edition of this Review, PDG 04.

K₂(1770) MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
1773 ± 8		¹ ASTON	93	LASS	11K ⁻ p → K ⁻ ωp
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
1743 ± 15		TIKHOMIROV 03	SPEC		40.0 π ⁻ C → K _S ⁰ K _S ⁰ K _L ⁰ X
1810 ± 20		FRAME	86	OMEG +	13 K ⁺ p → φK ⁺ p
~ 1730		ARMSTRONG	83	OMEG -	18.5 K ⁻ p → 3Kp
~ 1780		² DAUM	81C	CNTR -	63 K ⁻ p → K ⁻ 2πp
1710 ± 15	60	CHUNG	74	HBC -	7.3 K ⁻ p → K ⁻ ωp
1767 ± 6		BLIEDEN	72	MMS -	11-16 K ⁻ p
1730 ± 20	306	³ FIRESTONE	72B	DBC +	12 K ⁺ d
1765 ± 40		⁴ COLLEY	71	HBC +	10 K ⁺ p → K2πN
1740		DENEGRI	71	DBC -	12.6 K ⁻ d → \overline{K} 2πd
1745 ± 20		AGUILAR-...	70C	HBC -	4.6 K ⁻ p
1780 ± 15		BARTSCH	70C	HBC -	10.1 K ⁻ p
1760 ± 15		LUDLAM	70	HBC -	12.6 K ⁻ p

¹ From a partial wave analysis of the K⁻ω system.

² From a partial wave analysis of the K⁻2π system.

³ Produced in conjunction with excited deuteron.

⁴ Systematic errors added correspond to spread of different fits.

K₂(1770) WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
186 ± 14		⁵ ASTON	93	LASS	11K ⁻ p → K ⁻ ωp
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
147 ± 70		TIKHOMIROV 03	SPEC		40.0 π ⁻ C → K _S ⁰ K _S ⁰ K _L ⁰ X
140 ± 40		FRAME	86	OMEG +	13 K ⁺ p → φK ⁺ p
~ 220		ARMSTRONG	83	OMEG -	18.5 K ⁻ p → 3Kp
~ 210		⁶ DAUM	81C	CNTR -	63 K ⁻ p → K ⁻ 2πp
110 ± 50	60	CHUNG	74	HBC -	7.3 K ⁻ p → K ⁻ ωp
100 ± 26		BLIEDEN	72	MMS -	11-16 K ⁻ p
210 ± 30	306	⁷ FIRESTONE	72B	DBC +	12 K ⁺ d
90 ± 70		⁸ COLLEY	71	HBC +	10 K ⁺ p → K2πN
130		DENEGRI	71	DBC -	12.6 K ⁻ d → \overline{K} 2πd
100 ± 50		AGUILAR-...	70C	HBC -	4.6 K ⁻ p
138 ± 40		BARTSCH	70C	HBC -	10.1 K ⁻ p
50 ⁺⁴⁰ ₋₂₀		LUDLAM	70	HBC -	12.6 K ⁻ p

⁵ From a partial wave analysis of the $K^- \omega$ system.

⁶ From a partial wave analysis of the $K^- 2\pi$ system.

⁷ Produced in conjunction with excited deuteron.

⁸ Systematic errors added correspond to spread of different fits.

$K_2(1770)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $K \pi \pi$	
Γ_2 $K_2^*(1430) \pi$	dominant
Γ_3 $K^*(892) \pi$	seen
Γ_4 $K f_2(1270)$	seen
Γ_5 $K f_0(980)$	
Γ_6 $K \phi$	seen
Γ_7 $K \omega$	seen

$K_2(1770)$ BRANCHING RATIOS

$\Gamma(K_2^*(1430)\pi)/\Gamma(K\pi\pi)$ Γ_2/Γ_1
 ($K_2^*(1430) \rightarrow K\pi$)

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
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~ 0.03	DAUM	81C	CNTR	63 $K^- p \rightarrow K^- 2\pi p$
~ 1.0	⁹ FIRESTONE	72B	DBC	+ 12 $K^+ d$
<1.0	COLLEY	71	HBC	10 $K^+ p$
0.2 ± 0.2	AGUILAR-...	70C	HBC	- 4.6 $K^- p$
<1.0	BARTSCH	70C	HBC	- 10.1 $K^- p$
1.0	BARBARO-...	69	HBC	+ 12.0 $K^+ p$

⁹ Produced in conjunction with excited deuteron.

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

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

~ 0.23	DAUM	81C	CNTR	63 $K^- p \rightarrow K^- 2\pi p$
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$\Gamma(K f_2(1270))/\Gamma(K\pi\pi)$ Γ_4/Γ_1
 ($f_2(1270) \rightarrow \pi\pi$)

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
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• • • We do not use the following data for averages, fits, limits, etc. • • •

~ 0.74	DAUM	81C	CNTR	63 $K^- p \rightarrow K^- 2\pi p$
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$\Gamma(K f_0(980))/\Gamma_{\text{total}}$ Γ_5/Γ

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possibly seen	TIKHOMIROV 03	SPEC	40.0 $\pi^- C \rightarrow K_S^0 K_S^0 K_L^0 X$
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$\Gamma(K\phi)/\Gamma_{\text{total}}$					Γ_6/Γ
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>	
seen	ARMSTRONG 83	OMEG	-	18.5 $K^- p \rightarrow K^- \phi N$	

$\Gamma(K\omega)/\Gamma_{\text{total}}$					Γ_7/Γ
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>	
seen	OTTER 81	HBC	\pm	8.25,10,16 $K^\pm p$	
seen	CHUNG 74	HBC	-	7.3 $K^- p \rightarrow K^- \omega p$	

$K_2(1770)$ REFERENCES

PDG	04	PL B592 1	S. Eidelman <i>et al.</i>	(PDG Collab.)
TIKHOMIROV	03	PAN 66 828	G.D. Tikhomirov <i>et al.</i>	
		Translated from YAF 66 860.		
ASTON	93	PL B308 186	D. Aston <i>et al.</i>	(SLAC, NAGO, CINC, INUS)
FRAME	86	NP B276 667	D. Frame <i>et al.</i>	(GLAS)
ARMSTRONG	83	NP B221 1	T.A. Armstrong <i>et al.</i>	(BARI, BIRM, CERN+)
DAUM	81C	NP B187 1	C. Daum <i>et al.</i>	(AMST, CERN, CRAC, MPIM+)
OTTER	81	NP B181 1	G. Otter	(AACH3, BERL, LOIC, VIEN, BIRM+)
CHUNG	74	PL 51B 413	S.U. Chung <i>et al.</i>	(BNL)
BLIEDEN	72	PL 39B 668	H.R. Blieden <i>et al.</i>	(STON, NEAS)
FIRESTONE	72B	PR D5 505	A. Firestone <i>et al.</i>	(LBL)
COLLEY	71	NP B26 71	D.C. Colley <i>et al.</i>	(BIRM, GLAS)
DENEGRI	71	NP B28 13	D. Denegri <i>et al.</i>	(JHU) JP
AGUILAR-...	70C	PRL 25 54	M. Aguilar-Benitez <i>et al.</i>	(BNL)
BARTSCH	70C	PL 33B 186	J. Bartsch <i>et al.</i>	(AACH, BERL, CERN+)
LUDLAM	70	PR D2 1234	T. Ludlam, J. Sandweiss, A.J. Slaughter	(YALE)
BARBARO-...	69	PRL 22 1207	A. Barbaro-Galtieri <i>et al.</i>	(LRL)