

$K_1(1400)$

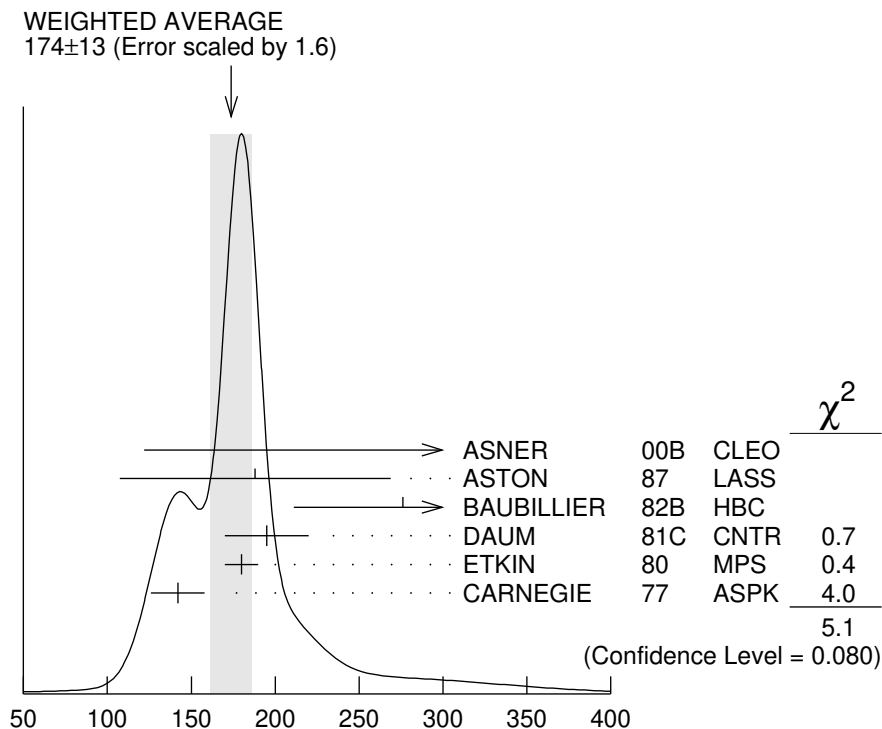
$$I(J^P) = \frac{1}{2}(1^+)$$

 $K_1(1400)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
1403 ± 7 OUR AVERAGE					
1463 ± 64 ± 68	7k	ASNER	00B	CLEO	± $\tau^- \rightarrow K^- \pi^+ \pi^- \nu_\tau$
1373 ± 14 ± 18		¹ ASTON	87	LASS	0 11 $K^- p \rightarrow \bar{K}^0 \pi^+ \pi^- n$
1392 ± 18		BAUBILLIER	82B	HBC	0 8.25 $K^- p \rightarrow$ $K_S^0 \pi^+ \pi^- n$
1410 ± 25		DAUM	81C	CNTR	- 63 $K^- p \rightarrow K^- 2\pi p$
1415 ± 15		ETKIN	80	MPS	0 6 $K^- p \rightarrow \bar{K}^0 \pi^+ \pi^- n$
1404 ± 10		² CARNEGIE	77	ASPK	± 13 $K^\pm p \rightarrow (K\pi\pi)^\pm p$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1418 ± 8	25k	³ ABLIKIM	06C	BES2	$J/\psi \rightarrow$ $\bar{K}^*(892)^0 K^+ \pi^-$
~ 1350		⁴ TORNQVIST	82B	RVUE	
~ 1400		VERGEEST	79	HBC	- 4.2 $K^- p \rightarrow (\bar{K}\pi\pi)^- p$
~ 1400		BRANDENB...	76	ASPK	± 13 $K^\pm p \rightarrow (K\pi\pi)^\pm p$
1420		DAVIS	72	HBC	+ 12 $K^+ p$
1368 ± 18		FIRESTONE	72B	DBC	+ 12 $K^+ d$

¹ From partial-wave analysis of $K^0 \pi^+ \pi^-$ system.² From a model-dependent fit with Gaussian background to BRANDENBURG 76 data.³ Systematic errors not estimated.⁴ From a unitarized quark-model calculation. **$K_1(1400)$ WIDTH**

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
174 ± 13 OUR AVERAGE Error includes scale factor of 1.6. See the ideogram below.					
300 ⁺³⁷⁰ ₋₁₁₀ ± 140	7k	ASNER	00B	CLEO	± $\tau^- \rightarrow K^- \pi^+ \pi^- \nu_\tau$
188 ± 54 ± 60		¹ ASTON	87	LASS	0 11 $K^- p \rightarrow \bar{K}^0 \pi^+ \pi^- n$
276 ± 65		BAUBILLIER	82B	HBC	0 8.25 $K^- p \rightarrow$ $K_S^0 \pi^+ \pi^- n$
195 ± 25		DAUM	81C	CNTR	- 63 $K^- p \rightarrow K^- 2\pi p$
180 ± 10		ETKIN	80	MPS	0 6 $K^- p \rightarrow \bar{K}^0 \pi^+ \pi^- n$
142 ± 16		² CARNEGIE	77	ASPK	± 13 $K^\pm p \rightarrow (K\pi\pi)^\pm p$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
152 ± 16	25k	³ ABLIKIM	06C	BES2	$J/\psi \rightarrow$ $\bar{K}^*(892)^0 K^+ \pi^-$
~ 200		VERGEEST	79	HBC	- 4.2 $K^- p \rightarrow (\bar{K}\pi\pi)^- p$
~ 160		BRANDENB...	76	ASPK	± 13 $K^\pm p \rightarrow (K\pi\pi)^\pm p$
80		DAVIS	72	HBC	+ 12 $K^+ p$
241 ± 30		FIRESTONE	72B	DBC	+ 12 $K^+ d$



¹ From partial-wave analysis of $K^0 \pi^+ \pi^-$ system.

² From a model-dependent fit with Gaussian background to BRANDENBURG 76 data.

³ Systematic errors not estimated.

$K_1(1400)$ width (MeV)

$K_1(1400)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $K^*(892)\pi$	(94 ± 6) %
Γ_2 $K\rho$	(3.0 ± 3.0) %
Γ_3 $K f_0(1370)$	(2.0 ± 2.0) %
Γ_4 $K\omega$	(1.0 ± 1.0) %
Γ_5 $K_0^*(1430)\pi$	not seen
Γ_6 γK^0	seen
Γ_7 $K\phi$	seen

$K_1(1400)$ PARTIAL WIDTHS

$\Gamma(K^*(892)\pi)$						Γ_1
VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT		
117±10	CARNEGIE	77	ASPK	±	13 $K^\pm p \rightarrow (K\pi\pi)^\pm p$	
$\Gamma(K\rho)$						Γ_2
VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT		
2±1	CARNEGIE	77	ASPK	±	13 $K^\pm p \rightarrow (K\pi\pi)^\pm p$	

$\Gamma(K\omega)$						Γ_4
<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>		
23±12	CARNEGIE	77	ASPK	±	13 $K^\pm p \rightarrow (K\pi\pi)^\pm p$	

$\Gamma(\gamma K^0)$						Γ_6
<u>VALUE (keV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>			
280.8±23.2±40.4	ALAVI-HARATI02B	KTEV	$K + A \rightarrow K^* + A$			

$K_1(1400)$ BRANCHING RATIOS

$\Gamma(K^*(892)\pi)/\Gamma_{\text{total}}$						Γ_1/Γ
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>			
0.94±0.06	¹ DAUM	81C	CNTR	63	$K^- p \rightarrow K^- 2\pi p$	

¹ Average from low and high t data.

$\Gamma(K\rho)/\Gamma_{\text{total}}$						Γ_2/Γ
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>			
0.03±0.03	¹ DAUM	81C	CNTR	63	$K^- p \rightarrow K^- 2\pi p$	

¹ Average from low and high t data.

$\Gamma(K f_0(1370))/\Gamma_{\text{total}}$						Γ_3/Γ
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>			
0.02±0.02	¹ DAUM	81C	CNTR	63	$K^- p \rightarrow K^- 2\pi p$	

¹ Average from low and high t data.

$\Gamma(K\omega)/\Gamma_{\text{total}}$						Γ_4/Γ
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>			
0.01±0.01	¹ DAUM	81C	CNTR	63	$K^- p \rightarrow K^- 2\pi p$	

¹ Average from low and high t data.

$\Gamma(K\phi)/\Gamma_{\text{total}}$						Γ_7/Γ
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>		
seen	24k	¹ AAIJ	21E	LHCB	$B^+ \rightarrow J/\psi\phi K^+$	

¹ From an amplitude analysis of the decay $B^+ \rightarrow J/\psi\phi K^+$ with a significance of 9.2 σ .

$\Gamma(K_0^*(1430)\pi)/\Gamma_{\text{total}}$						Γ_5/Γ
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>			
not seen	¹ DAUM	81C	CNTR	63	$K^- p \rightarrow K^- 2\pi p$	

¹ Average from low and high t data.

D-wave/S-wave RATIO FOR $K_1(1400) \rightarrow K^*(892)\pi$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
0.04±0.01	¹ DAUM	81C	CNTR	63 $K^- p \rightarrow K^- 2\pi p$

¹ Average from low and high t data.

$K_1(1400)$ REFERENCES

AAIJ	21E	PRL 127 082001	R. Aaij <i>et al.</i>	(LHCb Collab.)
ABLIKIM	06C	PL B633 681	M. Ablikim <i>et al.</i>	(BES Collab.)
ALAVI-HARATI	02B	PRL 89 072001	A. Alavi-Harati <i>et al.</i>	(FNAL KTeV Collab.)
ASNER	00B	PR D62 072006	D.M. Asner <i>et al.</i>	(CLEO Collab.)
ASTON	87	NP B292 693	D. Aston <i>et al.</i>	(SLAC, NAGO, CINC, INUS)
BAUBILLIER	82B	NP B202 21	M. Baubillier <i>et al.</i>	(BIRM, CERN, GLAS+)
TORNQVIST	82B	NP B203 268	N.A. Tornqvist	(HELS)
DAUM	81C	NP B187 1	C. Daum <i>et al.</i>	(AMST, CERN, CRAC, MPIM+)
ETKIN	80	PR D22 42	A. Etkin <i>et al.</i>	(BNL, CUNY) JP
VERGEEST	79	NP B158 265	J.S.M. Vergeest <i>et al.</i>	(NIJM, AMST, CERN+)
CARNEGIE	77	NP B127 509	R.K. Carnegie <i>et al.</i>	(SLAC)
BRANDENB...	76	PRL 36 703	G.W. Brandenburg <i>et al.</i>	(SLAC) JP
DAVIS	72	PR D5 2688	P.J. Davis <i>et al.</i>	(LBL)
FIRESTONE	72B	PR D5 505	A. Firestone <i>et al.</i>	(LBL)
