

$K_1(1400)$

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

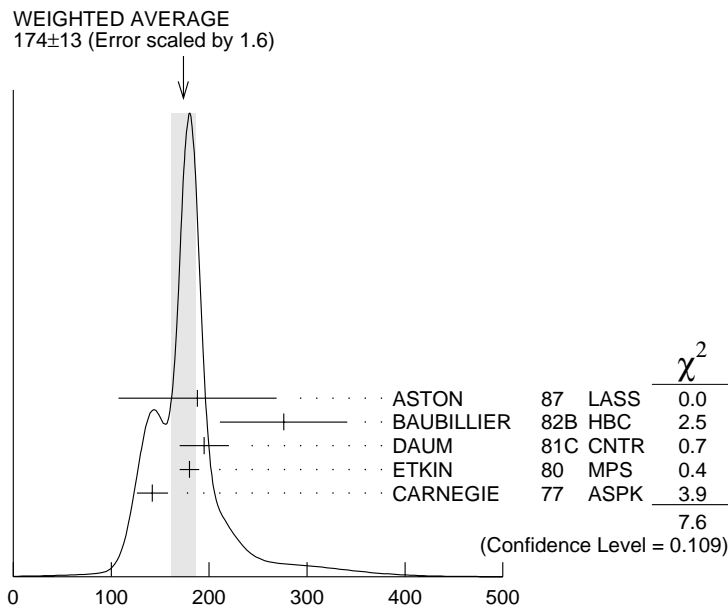
 $K_1(1400)$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT
1402 ± 7 OUR AVERAGE				
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. ● ● ●				
~ 1350	³ 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 From a unitarized quark-model calculation. **$K_1(1400)$ WIDTH**

VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT
174 ± 13 OUR AVERAGE Error includes scale factor of 1.6. See the ideogram below.				
188 ± 54 ± 60	⁴ 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	⁵ 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. ● ● ●				
~ 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 $K^+ d$

⁴ From partial-wave analysis of $K^0 \pi^+ \pi^-$ system.⁵ From a model-dependent fit with Gaussian background to BRANDENBURG 76 data.



$K_1(1400)$ 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 $Kf_0(1370)$	(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

$K_1(1400)$ 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				
VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT
23 ± 12	CARNEGIE	77	ASPK	± 13 $K^\pm p \rightarrow (K\pi\pi)^\pm p$

$\Gamma(\gamma K^0)$				Γ_6
VALUE (keV)	DOCUMENT ID	TECN	COMMENT	
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
VALUE	DOCUMENT ID	TECN	COMMENT	
0.94 ± 0.06	⁶ DAUM	81C CNTR	63 $K^- p \rightarrow K^- 2\pi p$	

$\Gamma(K\rho)/\Gamma_{\text{total}}$				Γ_2/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.03 ± 0.03	⁶ DAUM	81C CNTR	63 $K^- p \rightarrow K^- 2\pi p$	

$\Gamma(K f_0(1370))/\Gamma_{\text{total}}$				Γ_3/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.02 ± 0.02	⁶ DAUM	81C CNTR	63 $K^- p \rightarrow K^- 2\pi p$	

$\Gamma(K\omega)/\Gamma_{\text{total}}$				Γ_4/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.01 ± 0.01	⁶ DAUM	81C CNTR	63 $K^- p \rightarrow K^- 2\pi p$	

$\Gamma(K_0^*(1430)\pi)/\Gamma_{\text{total}}$				Γ_5/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
not seen	⁶ DAUM	81C CNTR	63 $K^- p \rightarrow K^- 2\pi p$	

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

VALUE	DOCUMENT ID	TECN	COMMENT
0.04 ± 0.01	⁶ DAUM	81C CNTR	63 $K^- p \rightarrow K^- 2\pi p$

⁶ Average from low and high t data.

$K_1(1400)$ REFERENCES

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ASTON 87	NP B292 693	D. Aston <i>et al.</i>	(SLAC, NAGO, CINC, INUS)
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