

**$K_1(1400)$** 

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

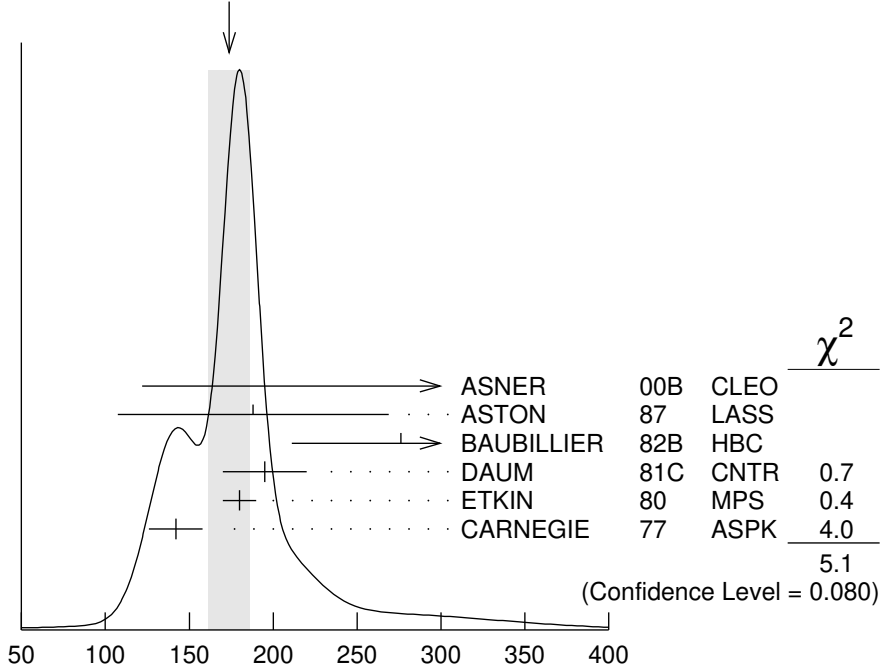
 **$K_1(1400)$  MASS**

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
<b>1403 ± 7 OUR AVERAGE</b>					
1463 ± 64 ± 68	7k	ASNER	00B	CLEO	± $\tau^- \rightarrow K^- \pi^+ \pi^- \nu_\tau$
1373 ± 14 ± 18		<sup>1</sup> 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		<sup>2</sup> 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	<sup>3</sup> ABLIKIM	06C	BES2	$J/\psi \rightarrow$ $\bar{K}^*(892)^0 K^+ \pi^-$
~ 1350		<sup>4</sup> 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 $K^+ d$

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

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
<b>174 ± 13 OUR AVERAGE</b> Error includes scale factor of 1.6. See the ideogram below.					
300 <sup>+370</sup> -110 ± 140	7k	ASNER	00B	CLEO	± $\tau^- \rightarrow K^- \pi^+ \pi^- \nu_\tau$
188 ± 54 ± 60		<sup>1</sup> 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		<sup>2</sup> 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	<sup>3</sup> 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 $K^+ d$

WEIGHTED AVERAGE  
 $174 \pm 13$  (Error scaled by 1.6)



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

<sup>2</sup> From a model-dependent fit with Gaussian background to BRANDENBURG 76 data.

<sup>3</sup> Systematic errors not estimated.

$K_1(1400)$  width (MeV)

### $K_1(1400)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $K^*(892)\pi$	(94 ± 6) %
$\Gamma_2$ $K\rho$	(3.0 ± 3.0) %
$\Gamma_3$ $Kf_0(1370)$	(2.0 ± 2.0) %
$\Gamma_4$ $K\omega$	(1.0 ± 1.0) %
$\Gamma_5$ $K_0^*(1430)\pi$	not seen
$\Gamma_6$ $\gamma K^0$	seen
$\Gamma_7$ $K\phi$	seen

### $K_1(1400)$ PARTIAL WIDTHS

$\Gamma(K^*(892)\pi)$						$\Gamma_1$
VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT		
<b>117 ± 10</b>	CARNEGIE	77	ASPK	±	13 $K^\pm p \rightarrow (K\pi\pi)^\pm p$	
$\Gamma(K\rho)$						$\Gamma_2$
VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT		
<b>2 ± 1</b>	CARNEGIE	77	ASPK	±	13 $K^\pm p \rightarrow (K\pi\pi)^\pm p$	

$\Gamma(K\omega)$					$\Gamma_4$
VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT	
<b>23±12</b>	CARNEGIE	77	ASPK	±	13 $K^\pm p \rightarrow (K\pi\pi)^\pm p$

$\Gamma(\gamma K^0)$					$\Gamma_6$
VALUE (keV)	DOCUMENT ID	TECN	COMMENT		
<b>280.8±23.2±40.4</b>	ALAVI-HARATI02B	KTEV	$K + A \rightarrow K^* + A$		

### $K_1(1400)$ BRANCHING RATIOS

$\Gamma(K^*(892)\pi)/\Gamma_{\text{total}}$					$\Gamma_1/\Gamma$
VALUE	DOCUMENT ID	TECN	COMMENT		
<b>0.94±0.06</b>	<sup>1</sup> DAUM	81C	CNTR	63 $K^- p \rightarrow K^- 2\pi p$	

<sup>1</sup> Average from low and high  $t$  data.

$\Gamma(K\rho)/\Gamma_{\text{total}}$					$\Gamma_2/\Gamma$
VALUE	DOCUMENT ID	TECN	COMMENT		
<b>0.03±0.03</b>	<sup>1</sup> DAUM	81C	CNTR	63 $K^- p \rightarrow K^- 2\pi p$	

<sup>1</sup> Average from low and high  $t$  data.

$\Gamma(K f_0(1370))/\Gamma_{\text{total}}$					$\Gamma_3/\Gamma$
VALUE	DOCUMENT ID	TECN	COMMENT		
<b>0.02±0.02</b>	<sup>1</sup> DAUM	81C	CNTR	63 $K^- p \rightarrow K^- 2\pi p$	

<sup>1</sup> Average from low and high  $t$  data.

$\Gamma(K\omega)/\Gamma_{\text{total}}$					$\Gamma_4/\Gamma$
VALUE	DOCUMENT ID	TECN	COMMENT		
<b>0.01±0.01</b>	<sup>1</sup> DAUM	81C	CNTR	63 $K^- p \rightarrow K^- 2\pi p$	

<sup>1</sup> Average from low and high  $t$  data.

$\Gamma(K\phi)/\Gamma_{\text{total}}$					$\Gamma_7/\Gamma$
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
<b>seen</b>	24k	<sup>1</sup> AAIJ	21E	LHCB $B^+ \rightarrow J/\psi\phi K^+$	

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

$\Gamma(K_0^*(1430)\pi)/\Gamma_{\text{total}}$					$\Gamma_5/\Gamma$
VALUE	DOCUMENT ID	TECN	COMMENT		
not seen	<sup>1</sup> DAUM	81C	CNTR	63 $K^- p \rightarrow K^- 2\pi p$	

<sup>1</sup> Average from low and high  $t$  data.

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

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

<sup>1</sup> 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)

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