

**$K^*(1680)$** 

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

 **$K^*(1680)$  MASS**

VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT
<b>1717±27 OUR AVERAGE</b>	Error includes scale factor of 1.4.			
1677±10±32	ASTON	88	LASS	0 11 $K^- p \rightarrow K^- \pi^+ n$
1735±10±20	ASTON	87	LASS	0 11 $K^- p \rightarrow \bar{K}^0 \pi^+ \pi^- n$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
1678±64	BIRD	89	LASS	- 11 $K^- p \rightarrow \bar{K}^0 \pi^- p$
1800±70	ETKIN	80	MPS	0 6 $K^- p \rightarrow \bar{K}^0 \pi^+ \pi^- n$
~ 1650	ESTABROOKS	78	ASPK	0 13 $K^\pm p \rightarrow K^\pm \pi^\pm n$

 **$K^*(1680)$  WIDTH**

VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT
<b>322±110 OUR AVERAGE</b>	Error includes scale factor of 4.2.			
205± 16±34	ASTON	88	LASS	0 11 $K^- p \rightarrow K^- \pi^+ n$
423± 18±30	ASTON	87	LASS	0 11 $K^- p \rightarrow \bar{K}^0 \pi^+ \pi^- n$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
454±270	BIRD	89	LASS	- 11 $K^- p \rightarrow \bar{K}^0 \pi^- p$
170± 30	ETKIN	80	MPS	0 6 $K^- p \rightarrow \bar{K}^0 \pi^+ \pi^- n$
250 to 300	ESTABROOKS	78	ASPK	0 13 $K^\pm p \rightarrow K^\pm \pi^\pm n$

 **$K^*(1680)$  DECAY MODES**

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $K\pi$	(38.7±2.5) %
$\Gamma_2$ $K\rho$	(31.4 <sup>+4.7</sup> <sub>-2.1</sub> ) %
$\Gamma_3$ $K^*(892)\pi$	(29.9 <sup>+2.2</sup> <sub>-4.7</sub> ) %

**CONSTRAINED FIT INFORMATION**

An overall fit to 4 branching ratios uses 4 measurements and one constraint to determine 3 parameters. The overall fit has a  $\chi^2 = 2.9$  for 2 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients  $\langle \delta x_i \delta x_j \rangle / (\delta x_i \delta x_j)$ , in percent, from the fit to the branching fractions,  $x_i \equiv \Gamma_i / \Gamma_{\text{total}}$ . The fit constrains the  $x_i$  whose labels appear in this array to sum to one.

$x_2$	-36	
$x_3$	-39	-72
	$x_1$	$x_2$

 **$K^*(1680)$  BRANCHING RATIOS**

$\Gamma(K\pi)/\Gamma_{\text{total}}$   $\Gamma_1/\Gamma$   
VALUE DOCUMENT ID TECN CHG COMMENT

**0.387 ± 0.026 OUR FIT**

**0.388 ± 0.014 ± 0.022** ASTON 88 LASS 0 11  $K^- p \rightarrow K^- \pi^+ n$

$\Gamma(K\pi)/\Gamma(K^*(892)\pi)$   $\Gamma_1/\Gamma_3$   
VALUE DOCUMENT ID TECN CHG COMMENT

**1.30<sup>+0.23</sup><sub>-0.14</sub> OUR FIT**

**2.8 ± 1.1** ASTON 84 LASS 0 11  $K^- p \rightarrow \bar{K}^0 2\pi n$

$\Gamma(K\rho)/\Gamma(K\pi)$   $\Gamma_2/\Gamma_1$   
VALUE DOCUMENT ID TECN CHG COMMENT

**0.81<sup>+0.14</sup><sub>-0.09</sub> OUR FIT**

**1.2 ± 0.4** ASTON 84 LASS 0 11  $K^- p \rightarrow \bar{K}^0 2\pi n$

$\Gamma(K\rho)/\Gamma(K^*(892)\pi)$   $\Gamma_2/\Gamma_3$   
VALUE DOCUMENT ID TECN CHG COMMENT

**1.05<sup>+0.27</sup><sub>-0.11</sub> OUR FIT**

**0.97 ± 0.09<sup>+0.30</sup><sub>-0.10</sub>** ASTON 87 LASS 0 11  $K^- p \rightarrow \bar{K}^0 \pi^+ \pi^- n$

 **$K^*(1680)$  REFERENCES**

BIRD	89	SLAC-332		(SLAC)
ASTON	88	NP B296 493	+Awaji, Bienz, Bird+	(SLAC, NAGO, CINC, INUS)
ASTON	87	NP B292 693	+Awaji, D'Amore+	(SLAC, NAGO, CINC, INUS)
ASTON	84	PL 149B 258	+Carnegie, Dunwoodie+	(SLAC, CARL, OTTA) JP
ETKIN	80	PR D22 42	+Foley, Lindenbaum, Kramer+	(BNL, CUNY) JP
ESTABROOKS	78	NP B133 490	+Carnegie+	(MCGI, CARL, DURH, SLAC) JP