

# $K_4^*(2045)$

$$I(J^P) = \frac{1}{2}(4^+)$$

## $K_4^*(2045)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT	
<b>2045 ± 9</b>	<b>OUR AVERAGE</b>	Error includes scale factor of 1.1.				
2062 ± 14 ± 13		<sup>1</sup> ASTON	86	LASS	0	11 $K^- p \rightarrow K^- \pi^+ n$
2039 ± 10	400	<sup>2,3</sup> CLELAND	82	SPEC	±	50 $K^+ p \rightarrow K_S^0 \pi^\pm p$
2070 <sup>+100</sup> <sub>-40</sub>		<sup>4</sup> ASTON	81C	LASS	0	11 $K^- p \rightarrow K^- \pi^+ n$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●						
2079 ± 7	431	TORRES	86	MPSF		400 $pA \rightarrow 4KX$
2088 ± 20	650	BAUBILLIER	82	HBC	-	8.25 $K^- p \rightarrow K_S^0 \pi^- p$
2115 ± 46	488	CARMONY	77	HBC	0	9 $K^+ d \rightarrow K^+ \pi^+ s X$
<sup>1</sup> From a fit to all moments. <sup>2</sup> From a fit to 8 moments. <sup>3</sup> Number of events evaluated by us. <sup>4</sup> From energy-independent partial-wave analysis.						

## $K_4^*(2045)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT	
<b>198 ± 30</b>	<b>OUR AVERAGE</b>					
221 ± 48 ± 27		<sup>5</sup> ASTON	86	LASS	0	11 $K^- p \rightarrow K^- \pi^+ n$
189 ± 35	400	<sup>6,7</sup> CLELAND	82	SPEC	±	50 $K^+ p \rightarrow K_S^0 \pi^\pm p$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●						
61 ± 58	431	TORRES	86	MPSF		400 $pA \rightarrow 4KX$
170 <sup>+100</sup> <sub>-50</sub>	650	BAUBILLIER	82	HBC	-	8.25 $K^- p \rightarrow K_S^0 \pi^- p$
240 <sup>+500</sup> <sub>-100</sub>		<sup>8</sup> ASTON	81C	LASS	0	11 $K^- p \rightarrow K^- \pi^+ n$
300 ± 200		CARMONY	77	HBC	0	9 $K^+ d \rightarrow K^+ \pi^+ s X$
<sup>5</sup> From a fit to all moments. <sup>6</sup> From a fit to 8 moments. <sup>7</sup> Number of events evaluated by us. <sup>8</sup> From energy-independent partial-wave analysis.						

## $K_4^*(2045)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $K\pi$	(9.9 ± 1.2) %
$\Gamma_2$ $K^*(892)\pi\pi$	(9 ± 5) %
$\Gamma_3$ $K^*(892)\pi\pi\pi$	(7 ± 5) %
$\Gamma_4$ $\rho K\pi$	(5.7 ± 3.2) %
$\Gamma_5$ $\omega K\pi$	(5.0 ± 3.0) %
$\Gamma_6$ $\phi K\pi$	(2.8 ± 1.4) %
$\Gamma_7$ $\phi K^*(892)$	(1.4 ± 0.7) %

### $K_4^*(2045)$ BRANCHING RATIOS

$\Gamma(K\pi)/\Gamma_{\text{total}}$						$\Gamma_1/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>		
<b>0.099±0.012</b>	ASTON	88	LASS	0	11	$K^- p \rightarrow K^- \pi^+ n$
$\Gamma(K^*(892)\pi\pi)/\Gamma(K\pi)$						$\Gamma_2/\Gamma_1$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>		
<b>0.89±0.53</b>	BAUBILLIER	82	HBC	–	8.25	$K^- p \rightarrow p K_S^0 3\pi$
$\Gamma(K^*(892)\pi\pi\pi)/\Gamma(K\pi)$						$\Gamma_3/\Gamma_1$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>		
<b>0.75±0.49</b>	BAUBILLIER	82	HBC	–	8.25	$K^- p \rightarrow p K_S^0 3\pi$
$\Gamma(\rho K\pi)/\Gamma(K\pi)$						$\Gamma_4/\Gamma_1$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>		
<b>0.58±0.32</b>	BAUBILLIER	82	HBC	–	8.25	$K^- p \rightarrow p K_S^0 3\pi$
$\Gamma(\omega K\pi)/\Gamma(K\pi)$						$\Gamma_5/\Gamma_1$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>		
<b>0.50±0.30</b>	BAUBILLIER	82	HBC	–	8.25	$K^- p \rightarrow p K_S^0 3\pi$
$\Gamma(\phi K\pi)/\Gamma_{\text{total}}$						$\Gamma_6/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>			
<b>0.028±0.014</b>	<sup>9</sup> TORRES	86	MPSF	400	$pA \rightarrow 4KX$	
$\Gamma(\phi K^*(892))/\Gamma_{\text{total}}$						$\Gamma_7/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>			
<b>0.014±0.007</b>	<sup>9</sup> TORRES	86	MPSF	400	$pA \rightarrow 4KX$	

<sup>9</sup> Error determination is model dependent.

### $K_4^*(2045)$ REFERENCES

ASTON	88	NP B296 493	D. Aston <i>et al.</i>	(SLAC, NAGO, CINC, INUS)
ASTON	86	PL B180 308	D. Aston <i>et al.</i>	(SLAC, NAGO, CINC, INUS)
TORRES	86	PR D34 707	S. Torres <i>et al.</i>	(VPI, ARIZ, FNAL, FSU+)
BAUBILLIER	82	PL 118B 447	M. Baubillier <i>et al.</i>	(BIRM, CERN, GLAS+)
CLELAND	82	NP B208 189	W.E. Cleland <i>et al.</i>	(DURH, GEVA, LAUS+)
ASTON	81C	PL 106B 235	D. Aston <i>et al.</i>	(SLAC, CARL, OTTA) JP
CARMONY	77	PR D16 1251	D.D. Carmony <i>et al.</i>	(PURD, UCD, IUPU)