

# η(1475)

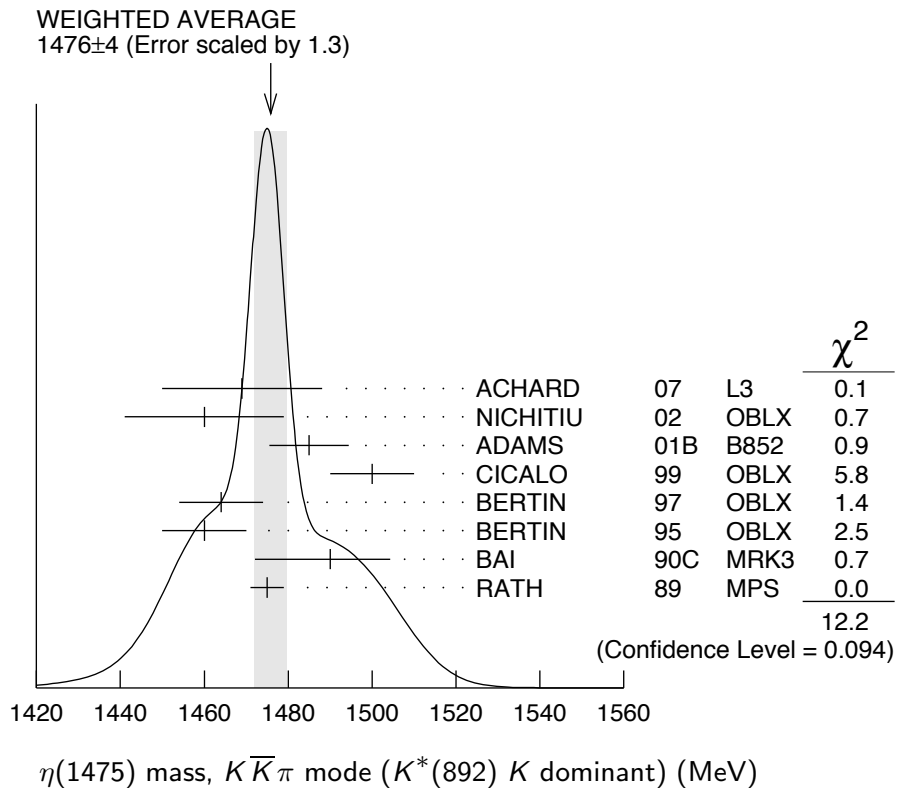
$$I^G(J^{PC}) = 0^+(0^{-+})$$

See also the η(1405).

## η(1475) MASS

### K $\bar{K}\pi$ MODE (K\*(892) K dominant)

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>1476 ± 4 OUR AVERAGE</b> Error includes scale factor of 1.3. See the ideogram below.				
1469 ± 14 ± 13	74	ACHARD	07 L3	183-209 e <sup>+</sup> e <sup>-</sup> → e <sup>+</sup> e <sup>-</sup> K <sub>S</sub> <sup>0</sup> K <sup>±</sup> π <sup>∓</sup>
1460 ± 19	3651	NICHITIU	02 OBLX	
1485 ± 8 ± 5	20k	ADAMS	01B B852	18 GeV π <sup>-</sup> p → K <sup>+</sup> K <sup>-</sup> π <sup>0</sup> n
1500 ± 10		CICALO	99 OBLX	0 p̄p → K <sup>±</sup> K <sub>S</sub> <sup>0</sup> π <sup>∓</sup> π <sup>+</sup> π <sup>-</sup>
1464 ± 10		BERTIN	97 OBLX	0 p̄p → K <sup>±</sup> (K <sup>0</sup> )π <sup>∓</sup> π <sup>+</sup> π <sup>-</sup>
1460 ± 10		BERTIN	95 OBLX	0 p̄p → K $\bar{K}\pi\pi\pi$
1490 <sup>+14+3</sup> <sub>-8-16</sub>	1100	BAI	90C MRK3	J/ψ → γK <sub>S</sub> <sup>0</sup> K <sup>±</sup> π <sup>∓</sup>
1475 ± 4		RATH	89 MPS	21.4 π <sup>-</sup> p → nK <sub>S</sub> <sup>0</sup> K <sub>S</sub> <sup>0</sup> π <sup>0</sup>
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
1421 ± 14		AUGUSTIN	92 DM2	J/ψ → γK $\bar{K}\pi$

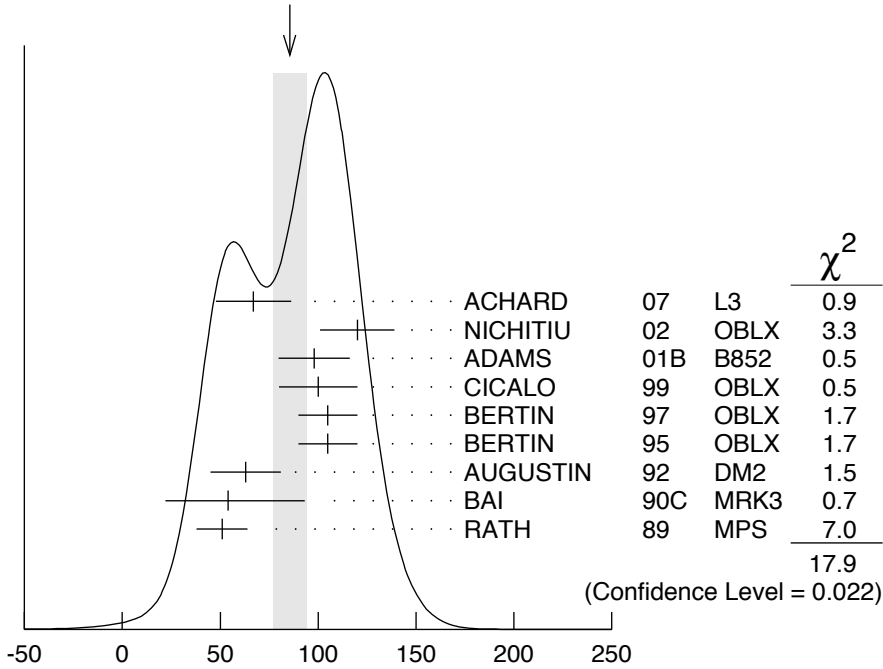


## $\eta(1475)$ WIDTH

### $K\bar{K}\pi$ MODE ( $K^*(892)$ $K$ dominant)

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b><math>85 \pm 9</math></b>	<b>OUR AVERAGE</b>	Error includes scale factor of 1.5. See the ideogram below.		
$67 \pm 18 \pm 7$	74	ACHARD	07 L3	$183-209 e^+ e^- \rightarrow e^+ e^- K_S^0 K^\pm \pi^\mp$
$120 \pm 19$	3651	NICHITIU	02 OBLX	
$98 \pm 18 \pm 3$	20k	ADAMS	01B B852	$18 \text{ GeV } \pi^- p \rightarrow K^+ K^- \pi^0 n$
$100 \pm 20$		CICALO	99 OBLX	$0 \bar{p} p \rightarrow K^\pm K_S^0 \pi^\mp \pi^+ \pi^-$
$105 \pm 15$		BERTIN	97 OBLX	$0.0 \bar{p} p \rightarrow K^\pm (K^0) \pi^\mp \pi^+ \pi^-$
$105 \pm 15$		BERTIN	95 OBLX	$0 \bar{p} p \rightarrow K\bar{K}\pi\pi\pi$
$63 \pm 18$		AUGUSTIN	92 DM2	$J/\psi \rightarrow \gamma K\bar{K}\pi$
$54^{+37}_{-21} +^{13}_{-24}$		BAI	90C MRK3	$J/\psi \rightarrow \gamma K_S^0 K^\pm \pi^\mp$
$51 \pm 13$		RATH	89 MPS	$21.4 \pi^- p \rightarrow n K_S^0 K_S^0 \pi^0$

WEIGHTED AVERAGE  
 $85 \pm 9$  (Error scaled by 1.5)



$\eta(1475)$  width  $K\bar{K}\pi$  mode ( $K^*(892)$   $K$  dominant)

### $\eta(1475)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $K\bar{K}\pi$	dominant
$\Gamma_2$ $K\bar{K}^*(892) + \text{c.c.}$	seen
$\Gamma_3$ $a_0(980)\pi$	seen
$\Gamma_4$ $\gamma\gamma$	seen

### $\eta(1475) \Gamma(i)\Gamma(\gamma\gamma)/\Gamma(\text{total})$

$\Gamma(K\bar{K}\pi) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$					$\Gamma_1\Gamma_4/\Gamma$
VALUE (keV)	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<b>0.23±0.05±0.05</b>		74	<sup>1</sup> ACHARD	07 L3	183-209 $e^+e^- \rightarrow e^+e^-K_S^0K^\pm\pi^\mp$

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< 0.089	90		<sup>2,3</sup> AHOHE	05 CLE2	10.6 $e^+e^- \rightarrow e^+e^-K_S^0K^\pm\pi^\mp$
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<sup>1</sup> Supersedes ACCIARRI 01G. Compatible with  $K^*K$  decay. Using  $B(K_S^0 \rightarrow \pi^+\pi^-) = 0.6895$ .

<sup>2</sup> Using  $\eta(1475)$  mass of 1481 MeV and width of 48 MeV. The upper limit increases to 0.140 keV if the world average value, 87 MeV, of the width is used.

<sup>3</sup> Assuming three-body phase-space decay to  $K_S^0K^\pm\pi^\mp$ .

### $\eta(1475)$ BRANCHING RATIOS

$\Gamma(K\bar{K}^*(892) + \text{c.c.})/\Gamma(K\bar{K}\pi)$					$\Gamma_2/\Gamma_1$
VALUE			DOCUMENT ID	TECN	COMMENT
0.50±0.10			<sup>4</sup> BAILLON	67 HBC	0.0 $\bar{p}p \rightarrow K\bar{K}\pi\pi\pi$

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$\Gamma(K\bar{K}^*(892) + \text{c.c.})/[\Gamma(K\bar{K}^*(892) + \text{c.c.}) + \Gamma(a_0(980)\pi)]$					$\Gamma_2/(\Gamma_2+\Gamma_3)$
VALUE	CL%		DOCUMENT ID	TECN	COMMENT
<0.25	90		EDWARDS	82E CBAL	$J/\psi \rightarrow K^+K^-\pi^0\gamma$

<sup>4</sup> Data could also refer to  $\eta(1405)$ .

### $\eta(1475)$ REFERENCES

ACHARD	07	JHEP 0703 018	P. Achard <i>et al.</i>	(L3 Collab.)
AHOHE	05	PR D71 072001	R. Ahohe <i>et al.</i>	(CLEO Collab.)
NICHITIU	02	PL B545 261	F. Nichitiu <i>et al.</i>	(OBELIX Collab.)
ACCIARRI	01G	PL B501 1	M. Acciarri <i>et al.</i>	(L3 Collab.)
ADAMS	01B	PL B516 264	G.S. Adams <i>et al.</i>	(BNL E852 Collab.)
CICALO	99	PL B462 453	C. Cicalo <i>et al.</i>	(OBELIX Collab.)
BERTIN	97	PL B400 226	A. Bertin <i>et al.</i>	(OBELIX Collab.)
BERTIN	95	PL B361 187	A. Bertin <i>et al.</i>	(OBELIX Collab.)
AUGUSTIN	92	PR D46 1951	J.E. Augustin, G. Cosme	(DM2 Collab.)
BAI	90C	PRL 65 2507	Z. Bai <i>et al.</i>	(Mark III Collab.)
RATH	89	PR D40 693	M.G. Rath <i>et al.</i>	(NDAM, BRAN, BNL, CUNY+)
EDWARDS	82E	PRL 49 259	C. Edwards <i>et al.</i>	(CIT, HARV, PRIN+)
BAILLON	67	NC 50A 393	P.H. Baillon <i>et al.</i>	(CERN, CDEF, IRAD)