

$\eta(1405)$

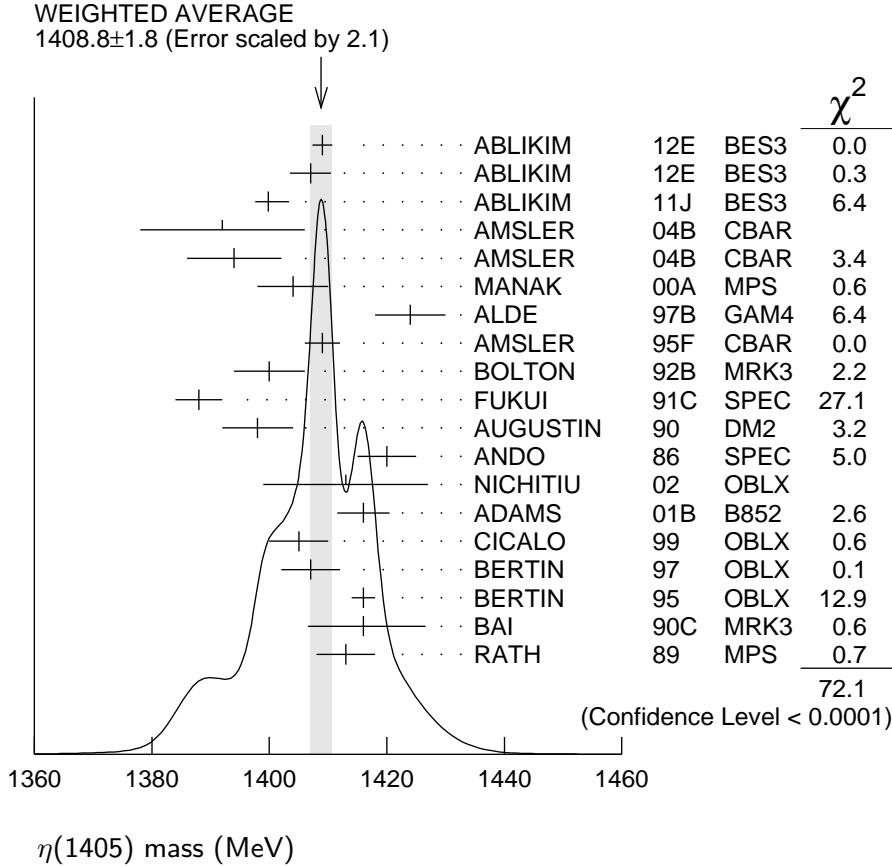
$$I^G(J^{PC}) = 0^+(0^-+)$$

See also the $\eta(1475)$.

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$\eta(1405)$ MASS

VALUE (MeV) DOCUMENT ID
1408.8 \pm 1.8 OUR AVERAGE Includes data from the 2 datablocks that follow this one.
 Error includes scale factor of 2.1. See the ideogram below.



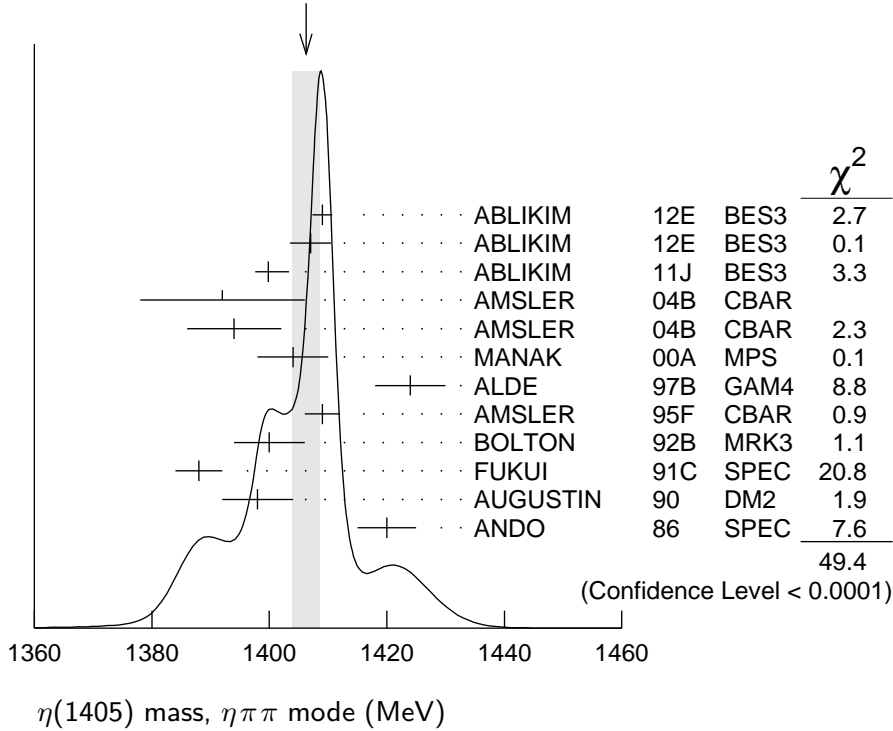
$\eta\pi\pi$ MODE

VALUE (MeV) EVT S DOCUMENT ID TECN COMMENT
 The data in this block is included in the average printed for a previous datablock.

1406.2\pm 2.3 OUR AVERAGE Error includes scale factor of 2.2. See the ideogram below.					
1409.0 \pm 1.7	743	ABLIKIM	12E BES3	$J/\psi \rightarrow \gamma(\pi^+\pi^-\pi^0)$	
1407.0 \pm 3.5	198	ABLIKIM	12E BES3	$J/\psi \rightarrow \gamma(\pi^0\pi^0\pi^0)$	
1399.8 \pm 2.2 ^{+2.8} _{-0.1}		¹ ABLIKIM	11J BES3	$J/\psi \rightarrow \omega(\eta\pi^+\pi^-)$	
1392 \pm 14	900 \pm 375	AMSLER	04B CBAR	$0 \bar{p}p \rightarrow \pi^+\pi^-\pi^+\pi^-\eta$	
1394 \pm 8	6.6 \pm 2.0k	AMSLER	04B CBAR	$0 \bar{p}p \rightarrow \pi^+\pi^-\pi^0\pi^0\eta$	
1404 \pm 6	9082	MANAK	00A MPS	$18 \pi^-p \rightarrow \eta\pi^+\pi^-n$	

1424 ± 6	2200	ALDE	97B GAM4	100	$\pi^- p \rightarrow \eta \pi^0 \pi^0 n$
1409 ± 3		AMSLER	95F CBAR	0	$\bar{p} p \rightarrow \pi^+ \pi^- \pi^0 \pi^0 \eta$
1400 ± 6		² BOLTON	92B MRK3		$J/\psi \rightarrow \gamma \eta \pi^+ \pi^-$
1388 ± 4		FUKUI	91C SPEC	8.95	$\pi^- p \rightarrow \eta \pi^+ \pi^- n$
1398 ± 6	261	³ AUGUSTIN	90 DM2		$J/\psi \rightarrow \gamma \eta \pi^+ \pi^-$
1420 ± 5		ANDO	86 SPEC	8	$\pi^- p \rightarrow \eta \pi^+ \pi^- n$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
1385 ± 7		BAI	99 BES		$J/\psi \rightarrow \gamma \eta \pi^+ \pi^-$

WEIGHTED AVERAGE
1406.2±2.3 (Error scaled by 2.2)



$K \bar{K} \pi$ MODE ($a_0(980)\pi$ or direct $K \bar{K} \pi$)

VALUE (MeV) EVTS DOCUMENT ID TECN COMMENT

The data in this block is included in the average printed for a previous datablock.

1413.9 ± 1.7 OUR AVERAGE Error includes scale factor of 1.1.

1413 ± 14	3651	⁴ NICHITIU	02	OBLX	
1416 ± 4 ± 2	20k	ADAMS	01B	B852	18 GeV $\pi^- p \rightarrow K^+ K^- \pi^0 n$
1405 ± 5		⁵ CICALO	99	OBLX	0 $\bar{p} p \rightarrow K^\pm K_S^0 \pi^\mp \pi^+ \pi^-$
1407 ± 5		⁵ BERTIN	97	OBLX	0 $\bar{p} p \rightarrow K^\pm (K^0) \pi^\mp \pi^+ \pi^-$
1416 ± 2		⁵ BERTIN	95	OBLX	0 $\bar{p} p \rightarrow K \bar{K} \pi \pi \pi$
1416 ± 8 $\begin{smallmatrix} +7 \\ -5 \end{smallmatrix}$	700	⁶ BAI	90C	MRK3	$J/\psi \rightarrow \gamma K_S^0 K^\pm \pi^\mp$
1413 ± 5		⁶ RATH	89	MPS	21.4 $\pi^- p \rightarrow n K_S^0 K_S^0 \pi^0$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
1459 ± 5		⁷ AUGUSTIN	92	DM2	$J/\psi \rightarrow \gamma K \bar{K} \pi$

$\pi\pi\gamma$ MODE

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
1390±12	235 ± 91	AMSLER	04B CBAR	0 $\bar{p}p \rightarrow \pi^+\pi^-\pi^+\pi^-\gamma$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
1424±10±11	547	BAI	04J BES2	$J/\psi \rightarrow \gamma\gamma\pi^+\pi^-$
1401±18		^{8,9} AUGUSTIN	90 DM2	$J/\psi \rightarrow \pi^+\pi^-\gamma\gamma$
1432± 8		⁹ COFFMAN	90 MRK3	$J/\psi \rightarrow \pi^+\pi^-2\gamma$

4 π MODE

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
1420±20		BUGG	95 MRK3	$J/\psi \rightarrow \gamma\pi^+\pi^-\pi^+\pi^-$
1489±12	3270	¹⁰ BISELLO	89B DM2	$J/\psi \rightarrow 4\pi\gamma$

 $K\bar{K}\pi$ MODE (unresolved)

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
1452.7 ± 3.3	191	^{11,12} ABLIKIM	13M BES3	$\psi(2S) \rightarrow \omega K K \pi$
1437.6 ± 3.2	249 ± 35	^{11,12} ABLIKIM	08E BES2	$J/\psi \rightarrow \omega K_S^0 K^+ \pi^- + \text{c.c.}$
1445.9 ± 5.7	62 ± 18	^{11,12} ABLIKIM	08E BES2	$J/\psi \rightarrow \omega K^+ K^- \pi^0$
1442 ± 10	410	¹¹ BAI	98C BES	$J/\psi \rightarrow \gamma K^+ K^- \pi^0$
1445 ± 8	693	¹¹ AUGUSTIN	90 DM2	$J/\psi \rightarrow \gamma K_S^0 K^\pm \pi^\mp$
1433 ± 8	296	¹¹ AUGUSTIN	90 DM2	$J/\psi \rightarrow \gamma K^+ K^- \pi^0$
1413 ± 8	500	¹¹ DUCH	89 ASTE	$\bar{p}p \rightarrow \pi^+\pi^- K^\pm \pi^\mp K^0$
1453 ± 7	170	¹¹ RATH	89 MPS	$21.4 \pi^- p \rightarrow K_S^0 K_S^0 \pi^0 n$
1419 ± 1	8800	¹¹ BIRMAN	88 MPS	$8 \pi^- p \rightarrow K^+ \bar{K}^0 \pi^- n$
1424 ± 3	620	¹¹ REEVES	86 SPEC	$6.6 p\bar{p} \rightarrow K\bar{K}\pi X$
1421 ± 2		¹¹ CHUNG	85 SPEC	$8 \pi^- p \rightarrow K\bar{K}\pi n$
1440 ⁺²⁰ ₋₁₅	174	¹¹ EDWARDS	82E CBAL	$J/\psi \rightarrow \gamma K^+ K^- \pi^0$
1440 ⁺¹⁰ ₋₁₅		¹¹ SCHARRE	80 MRK2	$J/\psi \rightarrow \gamma K_S^0 K^\pm \pi^\mp$
1425 ± 7	800	^{11,13} BAILLON	67 HBC	0 $\bar{p}p \rightarrow K\bar{K}\pi\pi\pi$

¹ The selected process is $J/\psi \rightarrow \omega a_0(980)\pi$.² From fit to the $a_0(980)\pi 0^-+$ partial wave.³ Best fit with a single Breit Wigner.⁴ Decaying dominantly directly to $K^+ K^- \pi^0$.⁵ Decaying into $(K\bar{K})_S\pi$, $(K\pi)_S\bar{K}$, and $a_0(980)\pi$.⁶ From fit to the $a_0(980)\pi 0^-+$ partial wave. Cannot rule out a $a_0(980)\pi 1^++$ partial wave.⁷ Excluded from averaging because averaging would be meaningless.⁸ Best fit with a single Breit Wigner.⁹ This peak in the $\gamma\rho$ channel may not be related to the $\eta(1405)$.¹⁰ Estimated by us from various fits.¹¹ These experiments identify only one pseudoscalar in the 1400–1500 range. Data could also refer to $\eta(1475)$.¹² Systematic uncertainty not evaluated.¹³ From best fit of 0^-+ partial wave, 50% $K^*(892)K$, 50% $a_0(980)\pi$.

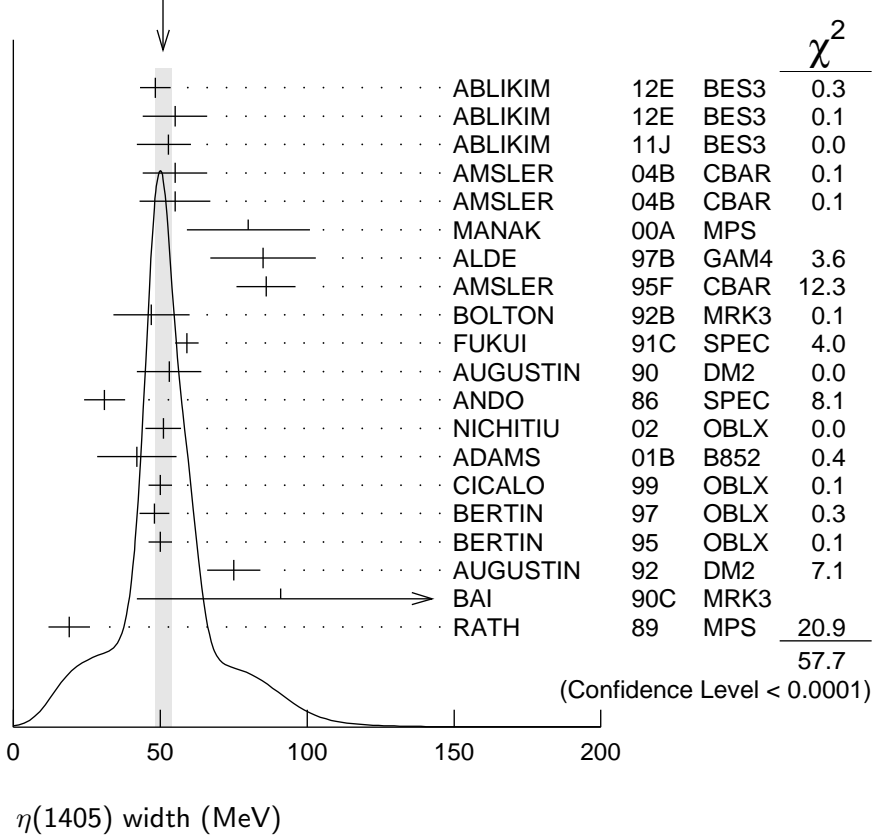
$\eta(1405)$ WIDTH

VALUE (MeV)

DOCUMENT ID

51.0 \pm 2.9 OUR AVERAGE Includes data from the 2 datablocks that follow this one. Error includes scale factor of 1.8. See the ideogram below.

WEIGHTED AVERAGE
51.0 \pm 2.9 (Error scaled by 1.8)



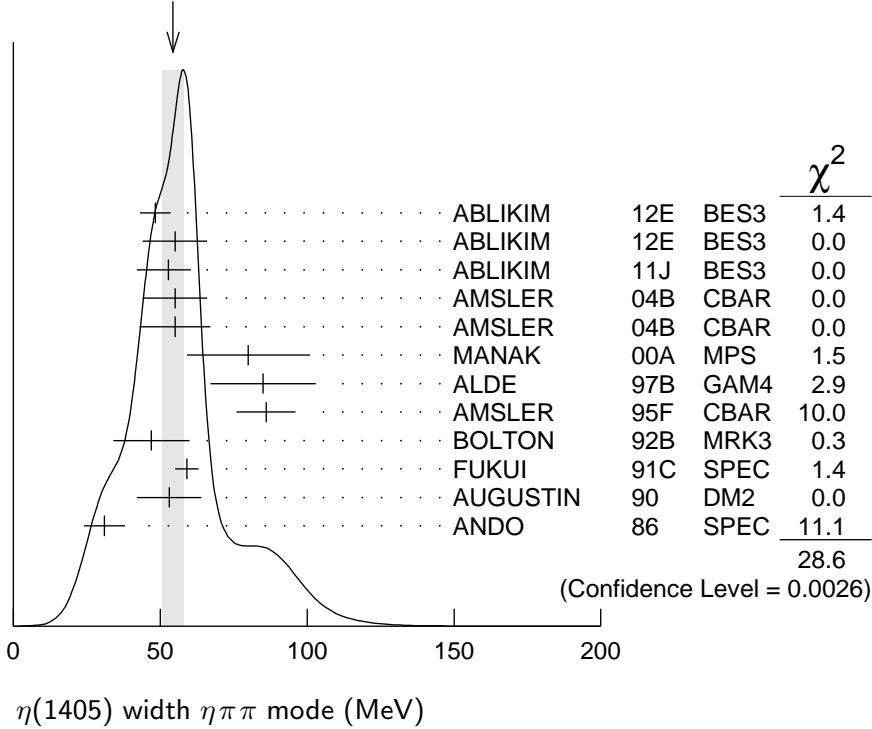
$\eta\pi\pi$ MODE

VALUE (MeV) EVTS DOCUMENT ID TECN COMMENT

The data in this block is included in the average printed for a previous datablock.

54 \pm 4 OUR AVERAGE		Error includes scale factor of 1.6. See the ideogram below.
48.3 \pm 5.2	743	ABLIKIM 12E BES3 $J/\psi \rightarrow \gamma(\pi^+\pi^-\pi^0)$
55.0 \pm 11.0	198	ABLIKIM 12E BES3 $J/\psi \rightarrow \gamma(\pi^0\pi^0\pi^0)$
52.8 \pm 7.6 $^{+0.1}_{-7.6}$	14	ABLIKIM 11J BES3 $J/\psi \rightarrow \omega(\eta\pi^+\pi^-)$
55 \pm 11	900 \pm 375	AMSLER 04B CBAR $0 \bar{p}p \rightarrow \pi^+\pi^-\pi^+\pi^-\eta$
55 \pm 12	6.6 \pm 2.0k	AMSLER 04B CBAR $0 \bar{p}p \rightarrow \pi^+\pi^-\pi^0\pi^0\gamma$
80 \pm 21	9082	MANAK 00A MPS $18 \pi^-p \rightarrow \eta\pi^+\pi^-n$
85 \pm 18	2200	ALDE 97B GAM4 $100 \pi^-p \rightarrow \eta\pi^0\pi^0n$
86 \pm 10		AMSLER 95F CBAR $0 \bar{p}p \rightarrow \pi^+\pi^-\pi^0\pi^0\eta$
47 \pm 13		15 BOLTON 92B MRK3 $J/\psi \rightarrow \gamma\eta\pi^+\pi^-$
59 \pm 4		FUKUI 91C SPEC $8.95 \pi^-p \rightarrow \eta\pi^+\pi^-n$
53 \pm 11		16 AUGUSTIN 90 DM2 $J/\psi \rightarrow \gamma\eta\pi^+\pi^-$
31 \pm 7		ANDO 86 SPEC $8 \pi^-p \rightarrow \eta\pi^+\pi^-n$

WEIGHTED AVERAGE
 54 ± 4 (Error scaled by 1.6)

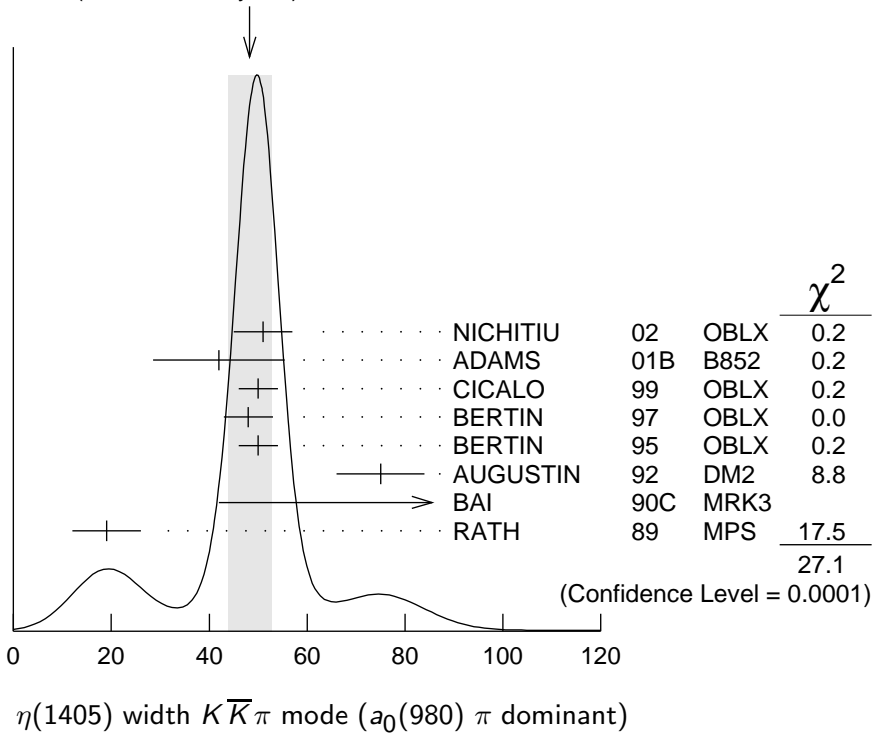


$K\bar{K}\pi$ MODE ($a_0(980)\pi$ or direct $K\bar{K}\pi$)

VALUE (MeV) EVTS DOCUMENT ID TECN COMMENT
 The data in this block is included in the average printed for a previous datablock.

48 ± 4 OUR AVERAGE		Error includes scale factor of 2.1. See the ideogram below.		
51 ± 6	3651	17 NICHITIU	02	OBLX
$42 \pm 10 \pm 9$	20k	ADAMS	01B	B852 18 GeV $\pi^- p \rightarrow K^+ K^- \pi^0 n$
50 ± 4		CICALO	99	OBLX $0 \bar{p} p \rightarrow K^\pm K_S^0 \pi^\mp \pi^+ \pi^-$
48 ± 5		18 BERTIN	97	OBLX $0.0 \bar{p} p \rightarrow K^\pm (K^0) \pi^\mp \pi^+ \pi^-$
50 ± 4		18 BERTIN	95	OBLX $0 \bar{p} p \rightarrow K\bar{K}\pi\pi\pi$
75 ± 9		AUGUSTIN	92	DM2 $J/\psi \rightarrow \gamma K\bar{K}\pi$
$91^{+67}_{-31} +15_{-38}$		19 BAI	90C	MRK3 $J/\psi \rightarrow \gamma K_S^0 K^\pm \pi^\mp$
19 ± 7		19 RATH	89	MPS $21.4 \pi^- p \rightarrow n K_S^0 K_S^0 \pi^0$

WEIGHTED AVERAGE
 48 ± 4 (Error scaled by 2.1)



$\pi\pi\gamma$ MODE

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
64 ± 18	235 ± 91	AMSLER	04B CBAR	$0 \bar{p}p \rightarrow \pi^+\pi^-\pi^+\pi^-\gamma$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
101.0 ± 8.8 ± 8.8	547	BAI	04J BES2	$J/\psi \rightarrow \gamma\gamma\pi^+\pi^-$
174 ± 44		AUGUSTIN	90 DM2	$J/\psi \rightarrow \pi^+\pi^-\gamma\gamma$
90 ± 26		20 COFFMAN	90 MRK3	$J/\psi \rightarrow \pi^+\pi^-2\gamma$

4π MODE

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
160 ± 30		BUGG	95 MRK3	$J/\psi \rightarrow \gamma\pi^+\pi^-\pi^+\pi^-$
144 ± 13	3270	21 BISELLO	89B DM2	$J/\psi \rightarrow 4\pi\gamma$

$K\bar{K}\pi$ MODE (unresolved)

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
45.9 ± 8.2	191	22,23 ABLIKIM	13M BES3	$\psi(2S) \rightarrow \omega K K \pi$
48.9 ± 9.0	249 ± 35	22,23 ABLIKIM	08E BES2	$J/\psi \rightarrow \omega K_S^0 K^+ \pi^- + \text{c.c.}$
34.2 ± 18.5	62 ± 18	22,23 ABLIKIM	08E BES2	$J/\psi \rightarrow \omega K^+ K^- \pi^0$
93 ± 14	296	22 AUGUSTIN	90 DM2	$J/\psi \rightarrow \gamma K^+ K^- \pi^0$
105 ± 10	693	22 AUGUSTIN	90 DM2	$J/\psi \rightarrow \gamma K_S^0 K^\pm \pi^\mp$
62 ± 16	500	22 DUCH	89 ASTE	$\bar{p}p \rightarrow K\bar{K}\pi\pi\pi$
100 ± 11	170	22 RATH	89 MPS	$21.4 \pi^- p \rightarrow K_S^0 K_S^0 \pi^0 n$

66 ± 2	8800	22 BIRMAN	88 MPS	$8 \pi^- p \rightarrow K^+ \bar{K}^0 \pi^- n$
60 ± 10	620	22 REEVES	86 SPEC	$6.6 p \bar{p} \rightarrow K K \pi X$
60 ± 10		22 CHUNG	85 SPEC	$8 \pi^- p \rightarrow K \bar{K} \pi n$
55 $\begin{smallmatrix} +20 \\ -30 \end{smallmatrix}$	174	22 EDWARDS	82E CBAL	$J/\psi \rightarrow \gamma K^+ K^- \pi^0$
50 $\begin{smallmatrix} +30 \\ -20 \end{smallmatrix}$		22 SCHARRE	80 MRK2	$J/\psi \rightarrow \gamma K_S^0 K^\pm \pi^\mp$
80 ± 10	800	22,24 BAILLON	67 HBC	$0.0 \bar{p} p \rightarrow K \bar{K} \pi \pi$

- 14 The selected process is $J/\psi \rightarrow \omega a_0(980) \pi$.
 15 From fit to the $a_0(980) \pi 0^-+$ partial wave.
 16 From $\eta \pi^+ \pi^-$ mass distribution - mainly $a_0(980) \pi$ - no spin-parity determination available.
 17 Decaying dominantly directly to $K^+ K^- \pi^0$.
 18 Decaying into $(K \bar{K})_S \pi$, $(K \pi)_S \bar{K}$, and $a_0(980) \pi$.
 19 From fit to the $a_0(980) \pi 0^-+$ partial wave, but $a_0(980) \pi 1^++$ cannot be excluded.
 20 This peak in the $\gamma \rho$ channel may not be related to the $\eta(1405)$.
 21 Estimated by us from various fits.
 22 These experiments identify only one pseudoscalar in the 1400–1500 range. Data could also refer to $\eta(1475)$.
 23 Systematic uncertainty not evaluated.
 24 From best fit to 0^-+ partial wave, 50% $K^*(892) K$, 50% $a_0(980) \pi$.

$\eta(1405)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)	Confidence level
Γ_1 $K \bar{K} \pi$	seen	
Γ_2 $\eta \pi \pi$	seen	
Γ_3 $a_0(980) \pi$	seen	
Γ_4 $\eta(\pi \pi)_S$ -wave	seen	
Γ_5 $f_0(980) \eta$	seen	
Γ_6 4π	seen	
Γ_7 $\rho \rho$	<58 %	99.85%
Γ_8 $\gamma \gamma$		
Γ_9 $\rho^0 \gamma$	seen	
Γ_{10} $\phi \gamma$		
Γ_{11} $K^*(892) K$	seen	

$\eta(1405) \Gamma(i) \Gamma(\gamma \gamma) / \Gamma(\text{total})$

$$\Gamma(K \bar{K} \pi) \times \Gamma(\gamma \gamma) / \Gamma_{\text{total}} \quad \Gamma_1 \Gamma_8 / \Gamma$$

VALUE (keV)	CL%	DOCUMENT ID	TECN	COMMENT
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• • • We do not use the following data for averages, fits, limits, etc. • • •

<0.035	90	25,26 AHOHE	05 CLE2	$10.6 e^+ e^- \rightarrow e^+ e^- K_S^0 K^\pm \pi^\mp$
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$$\Gamma(\eta \pi \pi) \times \Gamma(\gamma \gamma) / \Gamma_{\text{total}} \quad \Gamma_2 \Gamma_8 / \Gamma$$

VALUE (keV)	CL%	DOCUMENT ID	TECN	COMMENT
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<0.095	95	ACCIARRI	01G L3	$183\text{--}202 e^+ e^- \rightarrow e^+ e^- \eta \pi^+ \pi^-$
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$\Gamma(\rho^0\gamma) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ $\Gamma_9/\Gamma_8/\Gamma$

VALUE (keV)	CL%	DOCUMENT ID	TECN	COMMENT
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- • • We do not use the following data for averages, fits, limits, etc. • • •
- <1.5 95 ALTHOFF 84E TASS $e^+e^- \rightarrow e^+e^-\pi^+\pi^-\gamma$
- ²⁵ Using $\eta(1405)$ mass and width 1410 MeV and 51 MeV, respectively.
- ²⁶ Assuming three-body phase-space decay to $K_S^0 K^\pm \pi^\mp$.

$\eta(1405)$ BRANCHING RATIOS

$\Gamma(\eta\pi\pi)/\Gamma(K\bar{K}\pi)$ Γ_2/Γ_1

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
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- • • We do not use the following data for averages, fits, limits, etc. • • •
- 1.09±0.48 ²⁷ AMSLER 04B CBAR $0 \bar{p}p \rightarrow \pi^+\pi^-\pi^+\pi^-\eta$
- <0.5 90 EDWARDS 83B CBAL $J/\psi \rightarrow \eta\pi\pi\gamma$
- <1.1 90 SCHARRE 80 MRK2 $J/\psi \rightarrow \eta\pi\pi\gamma$
- <1.5 95 FOSTER 68B HBC 0.0 $\bar{p}p$

$\Gamma(\rho^0\gamma)/\Gamma(\eta\pi\pi)$ Γ_9/Γ_2

VALUE	DOCUMENT ID	TECN	COMMENT
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- 0.111±0.064 AMSLER 04B CBAR 0 $\bar{p}p$

$\Gamma(a_0(980)\pi)/\Gamma(K\bar{K}\pi)$ Γ_3/Γ_1

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
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- • • We do not use the following data for averages, fits, limits, etc. • • •
- ~ 0.15 ²⁸ BERTIN 95 OBLX $0 \bar{p}p \rightarrow K\bar{K}\pi\pi\pi$
- ~ 0.8 500 ²⁸ DUCH 89 ASTE $\bar{p}p \rightarrow \pi^+\pi^-K^\pm\pi^\mp K^0$
- ~ 0.75 ²⁸ REEVES 86 SPEC $6.6 p\bar{p} \rightarrow KK\pi X$

$\Gamma(a_0(980)\pi)/\Gamma(\eta\pi\pi)$ Γ_3/Γ_2

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
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- • • We do not use the following data for averages, fits, limits, etc. • • •
- 0.29±0.10 ABELE 98E CBAR $0 p\bar{p} \rightarrow \eta\pi^0\pi^0\pi^0$
- 0.19±0.04 2200 ²⁹ ALDE 97B GAM4 $100 \pi^-p \rightarrow \eta\pi^0\pi^0n$
- 0.56±0.04±0.03 ²⁹ AMSLER 95F CBAR $0 \bar{p}p \rightarrow \pi^+\pi^-\pi^0\pi^0\eta$

$\Gamma(a_0(980)\pi)/\Gamma(\eta(\pi\pi)s\text{-wave})$ Γ_3/Γ_4

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
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- • • We do not use the following data for averages, fits, limits, etc. • • •
- 0.91±0.12 ANISOVICH 01 SPEC $0.0 \bar{p}p \rightarrow \eta\pi^+\pi^-\pi^+\pi^-$
- 0.15±0.04 9082 ³⁰ MANAK 00A MPS $18 \pi^-p \rightarrow \eta\pi^+\pi^-n$
- 0.70±0.12±0.20 ³¹ BAI 99 BES $J/\psi \rightarrow \gamma\eta\pi^+\pi^-$

$\Gamma(\rho^0\gamma)/\Gamma(K\bar{K}\pi)$ Γ_9/Γ_1

VALUE	DOCUMENT ID	TECN	COMMENT
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- 0.0152±0.0038 ³² COFFMAN 90 MRK3 $J/\psi \rightarrow \gamma\gamma\pi^+\pi^-$

$\Gamma(\eta(\pi\pi)_{S\text{-wave}})/\Gamma(\eta\pi\pi)$ Γ_4/Γ_2

VALUE EVTS DOCUMENT ID TECN COMMENT

• • • We do not use the following data for averages, fits, limits, etc. • • •

0.81±0.04 2200 ALDE 97B GAM4 100 $\pi^- p \rightarrow \eta\pi^0\pi^0 n$

$\Gamma(f_0(980)\eta)/\Gamma(\eta\pi\pi)$ Γ_5/Γ_2

VALUE DOCUMENT ID TECN COMMENT

• • • We do not use the following data for averages, fits, limits, etc. • • •

0.32±0.07 33 ANISOVICH 00 SPEC 0.9–1.2 $\bar{p}p \rightarrow \eta 3\pi^0$

$\Gamma(\rho\rho)/\Gamma_{\text{total}}$ Γ_7/Γ

VALUE CL% DOCUMENT ID TECN COMMENT

<0.58 99.85 27,34 AMSLER 04B CBAR 0 $\bar{p}p$

$\Gamma(K^*(892)K)/\Gamma(a_0(980)\pi)$ Γ_{11}/Γ_3

VALUE DOCUMENT ID TECN COMMENT

• • • We do not use the following data for averages, fits, limits, etc. • • •

0.084±0.024 30 ADAMS 01B B852 18 GeV $\pi^- p \rightarrow K^+ K^- \pi^0 n$

$\Gamma(\phi\gamma)/\Gamma(\rho^0\gamma)$ Γ_{10}/Γ_9

VALUE CL% DOCUMENT ID TECN COMMENT

• • • We do not use the following data for averages, fits, limits, etc. • • •

<0.77 95 35 BAI 04J BES2 $J/\psi \rightarrow \gamma\gamma K^+ K^-$

²⁷ Using the data of BAILLON 67 on $\bar{p}p \rightarrow K\bar{K}\pi$.

²⁸ Assuming that the $a_0(980)$ decays only into $K\bar{K}$.

²⁹ Assuming that the $a_0(980)$ decays only into $\eta\pi$.

³⁰ Statistical error only.

³¹ Assuming that the $a_0(980)$ decays only into $\eta\pi$.

³² Using $B(J/\psi \rightarrow \gamma\eta(1405) \rightarrow \gamma K\bar{K}\pi) = 4.2 \times 10^{-3}$ and $B(J/\psi \rightarrow \gamma\eta(1405) \rightarrow \gamma\gamma\rho^0) = 6.4 \times 10^{-5}$ and assuming that the $\gamma\rho^0$ signal does not come from the $f_1(1420)$.

³³ Using preliminary Crystal Barrel data.

³⁴ Assuming that the $\eta(1405)$ decays are saturated by the $\pi\pi\eta$, $K\bar{K}\pi$ and $\rho\rho$ modes.

³⁵ Calculated by us from $B(J/\psi \rightarrow \eta(1405)\gamma \rightarrow \phi\gamma\gamma) < 0.82 \times 10^{-4}$ and $B(J/\psi \rightarrow \eta(1405)\gamma \rightarrow \rho^0\gamma\gamma) = (1.07 \pm 0.17 \pm 0.11) \times 10^{-4}$.

$\eta(1405)$ REFERENCES

ABLIKIM	13M	PR D87 092006	M. Ablikim <i>et al.</i>	(BES III Collab.)
ABLIKIM	12E	PRL 108 182001	M. Ablikim <i>et al.</i>	(BES III Collab.)
ABLIKIM	11J	PRL 107 182001	M. Ablikim <i>et al.</i>	(BES III Collab.)
ABLIKIM	08E	PR D77 032005	M. Ablikim <i>et al.</i>	(BES Collab.)
AHOHE	05	PR D71 072001	R. Ahohe <i>et al.</i>	(CLEO Collab.)
AMSLER	04B	EPJ C33 23	C. Amsler <i>et al.</i>	(Crystal Barrel Collab.)
BAI	04J	PL B594 47	J.Z. Bai <i>et al.</i>	(BES 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.)
ANISOVICH	01	NP A690 567	A.V. Anisovich <i>et al.</i>	
ANISOVICH	00	PL B472 168	A.V. Anisovich <i>et al.</i>	
MANAK	00A	PR D62 012003	J.J. Manak <i>et al.</i>	(BNL E852 Collab.)
BAI	99	PL B446 356	J.Z. Bai <i>et al.</i>	(BES Collab.)
CICALO	99	PL B462 453	C. Cicalo <i>et al.</i>	(OBELIX Collab.)
ABELE	98E	NP B514 45	A. Abele <i>et al.</i>	(Crystal Barrel Collab.)

BAI	98C	PL B440 217	J.Z. Bai <i>et al.</i>	(BES Collab.)
ALDE	97B	PAN 60 386	D. Alde <i>et al.</i>	(GAMS Collab.)
		Translated from YAF 60 458.		
BERTIN	97	PL B400 226	A. Bertin <i>et al.</i>	(OBELIX Collab.)
AMSLER	95F	PL B358 389	C. Amsler <i>et al.</i>	(Crystal Barrel Collab.)
BERTIN	95	PL B361 187	A. Bertin <i>et al.</i>	(OBELIX Collab.)
BUGG	95	PL B353 378	D.V. Bugg <i>et al.</i>	(LOQM, PNPI, WASH)
AUGUSTIN	92	PR D46 1951	J.E. Augustin, G. Cosme	(DM2 Collab.)
BOLTON	92B	PRL 69 1328	T. Bolton <i>et al.</i>	(Mark III Collab.)
FUKUI	91C	PL B267 293	S. Fukui <i>et al.</i>	(SUGI, NAGO, KEK, KYOT+)
AUGUSTIN	90	PR D42 10	J.E. Augustin <i>et al.</i>	(DM2 Collab.)
BAI	90C	PRL 65 2507	Z. Bai <i>et al.</i>	(Mark III Collab.)
COFFMAN	90	PR D41 1410	D.M. Coffman <i>et al.</i>	(Mark III Collab.)
BISELLO	89B	PR D39 701	G. Busetto <i>et al.</i>	(DM2 Collab.)
DUCH	89	ZPHY C45 223	K.D. Duch <i>et al.</i>	(ASTERIX Collab.) JP
RATH	89	PR D40 693	M.G. Rath <i>et al.</i>	(NDAM, BRAN, BNL, CUNY+)
BIRMAN	88	PRL 61 1557	A. Birman <i>et al.</i>	(BNL, FSU, IND, MASD) JP
ANDO	86	PRL 57 1296	A. Ando <i>et al.</i>	(KEK, KYOT, NIRS, SAGA+) IJP
REEVES	86	PR D34 1960	D.F. Reeves <i>et al.</i>	(FLOR, BNL, IND+) JP
CHUNG	85	PRL 55 779	S.U. Chung <i>et al.</i>	(BNL, FLOR, IND+) JP
ALTHOFF	84E	PL 147B 487	M. Althoff <i>et al.</i>	(TASSO Collab.)
EDWARDS	83B	PRL 51 859	C. Edwards <i>et al.</i>	(CIT, HARV, PRIN+)
EDWARDS	82E	PRL 49 259	C. Edwards <i>et al.</i>	(CIT, HARV, PRIN+)
Also		PRL 50 219	C. Edwards <i>et al.</i>	(CIT, HARV, PRIN+)
SCHARRE	80	PL 97B 329	D.L. Scharre <i>et al.</i>	(SLAC, LBL)
FOSTER	68B	NP B8 174	M. Foster <i>et al.</i>	(CERN, CDEF)
BAILLON	67	NC 50A 393	P.H. Baillon <i>et al.</i>	(CERN, CDEF, IRAD)