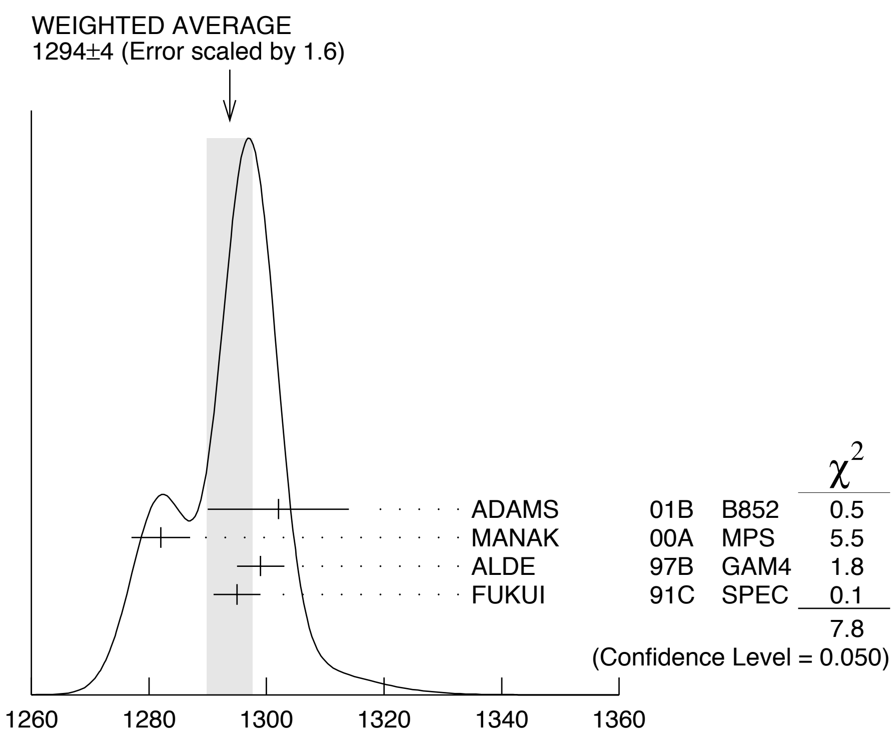
$\eta(1295)$

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

See also the mini-review under non-$q\overline{q}$ candidates in PDG 06, Journal of Physics, G **33** 1 (2006).

$\eta(1295)$ MASS

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1294±4 OUR AVERAGE	Error includes scale factor of 1.6. See the ideogram below.				
1302±9±8	20k	ADAMS	01B	B852	18 GeV $\pi^- p \rightarrow K^+ K^- \pi^0 n$
1282±5	9082	MANAK	00A	MPS	18 $\pi^- p \rightarrow \eta \pi^+ \pi^- n$
1299±4	2100	ALDE	97B	GAM4	100 $\pi^- p \rightarrow \eta \pi^0 \pi^0 n$
1295±4		FUKUI	91C	SPEC	8.95 $\pi^- p \rightarrow \eta \pi^+ \pi^- n$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1264±8		[1] AUGUSTIN	90	DM2	$J/\psi \rightarrow \gamma \eta \pi^+ \pi^-$
~ 1275		STANTON	79	CNTR	8.4 $\pi^- p \rightarrow n \eta 2\pi$



$\eta(1295)$ mass (MeV)

[1] PWA analysis of AUGUSTIN 92 assigns 0^{-+} quantum numbers to this state rather than 1^{++} as before.

$\eta(1295)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
55± 5 OUR AVERAGE					
57±23±21	20k	ADAMS	01B	B852	18 GeV $\pi^- p \rightarrow K^+ K^- \pi^0 n$
66±13	9082	MANAK	00A	MPS	18 $\pi^- p \rightarrow \eta\pi^+\pi^- n$
53± 6		FUKUI	91C	SPEC	8.95 $\pi^- p \rightarrow \eta\pi^+\pi^- n$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<40	2100	ALDE	97B	GAM4	100 $\pi^- p \rightarrow \eta\pi^0\pi^0 n$
44±20		[2] AUGUSTIN	90	DM2	$J/\psi \rightarrow \gamma\eta\pi^+\pi^-$
~ 70		STANTON	79	CNTR	8.4 $\pi^- p \rightarrow n\eta 2\pi$

[2] PWA analysis of AUGUSTIN 92 assigns 0^{-+} quantum numbers to this state rather than 1^{++} as before.

$\eta(1295)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\eta\pi^+\pi^-$	seen
Γ_2	$a_0(980)\pi$	seen
Γ_3	$\gamma\gamma$	
Γ_4	$\eta\pi^0\pi^0$	seen
Γ_5	$\eta(\pi\pi)_{S\text{-wave}}$	seen
Γ_6	$\sigma\eta$	
Γ_7	$K\overline{K}\pi$	

$\eta(1295)$ $\Gamma(i)\Gamma(\gamma\gamma)/\Gamma(\text{total})$

$\Gamma(\eta\pi^+\pi^-) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_1\Gamma_3/\Gamma$

VALUE (keV)	CL%	DOCUMENT ID		TECN	COMMENT
<0.066	95	ACCIARRI	01G	L3	183–202 $e^+e^- \rightarrow e^+e^-\eta\pi^+\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.6	90	AIHARA	88C	TPC	$e^+e^- \rightarrow e^+e^-\eta\pi^+\pi^-$
<0.3		ANTREASYAN	87	CBAL	$e^+e^- \rightarrow e^+e^-\eta\pi\pi$

$\Gamma(K\overline{K}\pi) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_7\Gamma_3/\Gamma$

VALUE (keV)	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.014	90	[3,4] AHOHE	05	CLE2	10.6 $e^+e^- \rightarrow e^+e^- K^0_S K^\pm\pi^\mp$

[3] Using $\eta(1295)$ mass and width 1294 MeV and 55 MeV, respectively.
[4] Assuming three-body phase-space decay to $K^0_S K^\pm\pi^\mp$.

$\eta(1295)$ BRANCHING RATIOS

$\Gamma(a_0(980)\pi)/\Gamma_{total}$ — Γ_2/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
not seen	BERTIN	97	OBLX	$0.0\ \overline{p}p \to K^{\pm}(K^0)\pi^{\mp}\pi^+\pi^-$
seen	BIRMAN	88	MPS	$8\ \pi^- p \to K^+\overline{K}^0\pi^- n$
large	ANDO	86	SPEC	$8\ \pi^- p \to \eta\pi^+\pi^- n$
large	STANTON	79	CNTR	$8.4\ \pi^- p \to n\eta 2\pi$

$\Gamma(a_0(980)\pi)/\Gamma(\eta\pi^0\pi^0)$ — Γ_2/Γ_4

VALUE	DOCUMENT ID		TECN	COMMENT
0.65±0.10	[5] ALDE	97B	GAM4	$100\ \pi^- p \to \eta\pi^0\pi^0 n$

[5] Assuming that $a_0(980)$ decays only to $\eta\pi$.

$\Gamma(\eta(\pi\pi)_{S\text{-wave}})/\Gamma(\eta\pi^0\pi^0)$ — Γ_5/Γ_4

VALUE	DOCUMENT ID		TECN	COMMENT
0.35±0.10	ALDE	97B	GAM4	$100\ \pi^- p \to \eta\pi^0\pi^0 n$

$\Gamma(a_0(980)\pi)/\Gamma(\sigma\eta)$ — Γ_2/Γ_6

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.48±0.22	9082	MANAK	00A	MPS	$18\ \pi^- p \to \eta\pi^+\pi^- n$

$\eta(1295)$ REFERENCES

PDG 06 JPG 33 1 W.-M. Yao et al. (PDG Collab.)
AHOHE 05 PR D71 072001 R. Ahohe et al. (CLEO Collab.)
ACCIARRI 01G PL B501 1 M. Acciarri et al. (L3 Collab.)
ADAMS 01B PL B516 264 G.S. Adams et al. (BNL E852 Collab.)
MANAK 00A PR D62 012003 J.J. Manak et al. (BNL E852 Collab.)
ALDE 97B PAN 60 386 D. Alde et al. (GAMS Collab.)
Translated from YAF 60 458.
BERTIN 97 PL B400 226 A. Bertin et al. (OBELIX Collab.)
AUGUSTIN 92 PR D46 1951 J.E. Augustin, G. Cosme (DM2 Collab.)
FUKUI 91C PL B267 293 S. Fukui et al. (SUGI, NAGO, KEK, KYOT+)
AUGUSTIN 90 PR D42 10 J.E. Augustin et al. (DM2 Collab.)
AIHARA 88C PR D38 1 H. Aihara et al. (TPC-2γ Collab.)
BIRMAN 88 PRL 61 1557 A. Birman et al. (BNL, FSU, IND, MASD) JP
ANTREASYAN 87 PR D36 2633 D. Antreasyan et al. (Crystal Ball Collab.)
ANDO 86 PRL 57 1296 A. Ando et al. (KEK, KYOT, NIRS, SAGA+) IJP
STANTON 79 PRL 42 346 N.R. Stanton et al. (OSU, CARL, MCGI+) JP

OTHER RELATED PAPERS

KLEMPT 07 PRPL 454 1 E. Klempt, A. Zaitsev
MASONI 06 JPG 32 R293 A. Masoni, C. Cicalo, G.L. Usai (INFN, CAGL)
AMSLER 04B EPJ C33 23 C. Amsler et al. (Crystal Barrel Collab.)
ANISOVICH 00F EPJ A6 247 A.V. Anisovich et al.