

$\eta_2(1870)$

$$I^G(J^{PC}) = 0^+(2^{-+})$$

Needs confirmation.

 $\eta_2(1870)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
1842 ± 8 OUR AVERAGE				
1835 ± 12		BARBERIS	00B	450 $pp \rightarrow p_f \eta \pi^+ \pi^- p_s$
1844 ± 13		BARBERIS	00C	450 $pp \rightarrow p_f 4\pi p_s$
1840 ± 25		BARBERIS	97B OMEG	450 $pp \rightarrow p p 2(\pi^+ \pi^-)$
1875 ± 20 ± 35		ADOMEIT	96 CBAR	1.94 $\bar{p}p \rightarrow \eta 3\pi^0$
1881 ± 32 ± 40	26	KARCH	92 CBAL	$e^+ e^- \rightarrow e^+ e^- \eta \pi^0 \pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1860 ± 5 ± 15		ANISOVICH	00E SPEC	0.9–1.94 $\bar{p}p \rightarrow \eta 3\pi^0$
1840 ± 15		BAI	99 BES	$J/\psi \rightarrow \gamma \eta \pi^+ \pi^-$

 $\eta_2(1870)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
225 ± 14 OUR AVERAGE				
235 ± 22		BARBERIS	00B	450 $pp \rightarrow p_f \eta \pi^+ \pi^- p_s$
228 ± 23		BARBERIS	00C	450 $pp \rightarrow p_f 4\pi p_s$
200 ± 40		BARBERIS	97B OMEG	450 $pp \rightarrow p p 2(\pi^+ \pi^-)$
200 ± 25 ± 45		ADOMEIT	96 CBAR	1.94 $\bar{p}p \rightarrow \eta 3\pi^0$
221 ± 92 ± 44	26	KARCH	92 CBAL	$e^+ e^- \rightarrow e^+ e^- \eta \pi^0 \pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
250 ± 25 ⁺⁵⁰ ₋₃₅		ANISOVICH	00E SPEC	0.9–1.94 $\bar{p}p \rightarrow \eta 3\pi^0$
170 ± 40		BAI	99 BES	$J/\psi \rightarrow \gamma \eta \pi^+ \pi^-$

 $\eta_2(1870)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $\eta \pi \pi$	
Γ_2 $a_2(1320)\pi$	
Γ_3 $f_2(1270)\eta$	
Γ_4 $a_0(980)\pi$	
Γ_5 $\gamma\gamma$	seen

$\eta_2(1870)$ BRANCHING RATIOS $\Gamma(a_2(1320)\pi)/\Gamma(f_2(1270)\eta)$ Γ_2/Γ_3

VALUE	DOCUMENT ID	TECN	COMMENT
1.7 ± 0.4 OUR AVERAGE			
1.60 ± 0.40	¹ ANISOVICH 11	SPEC	0.9–1.94 $p\bar{p}$
20.4 ± 6.6	BARBERIS 00B		450 $p p \rightarrow p_f \eta \pi^+ \pi^- p_s$
4.1 ± 2.3	ADOMEIT 96	CBAR	1.94 $\bar{p} p \rightarrow \eta 3\pi^0$

¹ Reanalysis of ADOMEIT 96 and ANISOVICH 00E. $\Gamma(a_2(1320)\pi)/\Gamma(a_0(980)\pi)$ Γ_2/Γ_4

VALUE	DOCUMENT ID	COMMENT
32.6 ± 12.6	BARBERIS 00B	450 $p p \rightarrow p_f \eta \pi^+ \pi^- p_s$

 $\Gamma(a_0(980)\pi)/\Gamma(f_2(1270)\eta)$ Γ_4/Γ_3

VALUE	DOCUMENT ID	TECN	COMMENT
0.48 ± 0.45	¹ ANISOVICH 11	SPEC	0.9–1.94 $p\bar{p}$

¹ Reanalysis of ADOMEIT 96 and ANISOVICH 00E. $\Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ Γ_5/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
seen	KARCH 92	CBAL	$e^+ e^- \rightarrow e^+ e^- \eta \pi^0 \pi^0$

 $\eta_2(1870)$ REFERENCES

ANISOVICH 11	EPJ C71 1511	A.V. Anisovich <i>et al.</i>	(LOQM, RAL, PNPI)
ANISOVICH 00E	PL B477 19	A.V. Anisovich <i>et al.</i>	
BARBERIS 00B	PL B471 435	D. Barberis <i>et al.</i>	(WA 102 Collab.)
BARBERIS 00C	PL B471 440	D. Barberis <i>et al.</i>	(WA 102 Collab.)
BAI 99	PL B446 356	J.Z. Bai <i>et al.</i>	(BES Collab.)
BARBERIS 97B	PL B413 217	D. Barberis <i>et al.</i>	(WA 102 Collab.)
ADOMEIT 96	ZPHY C71 227	J. Adomeit <i>et al.</i>	(Crystal Barrel Collab.)
KARCH 92	ZPHY C54 33	K. Karch <i>et al.</i>	(Crystal Ball Collab.)