NODE=M108

$f_2(2340)$

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

$f_2(2340)$ MASS

NODE=M108M

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
2346^{+21}_{-10} OUR AVERAGE					
$2346 \pm 8^{+22}_{-6}$		[1] ABLIKIM	22C	BES3	$J/\psi \to \gamma\eta'\eta' \to 4/5\gamma 2(\pi^+\pi^-)$
$2362^{+31+140}_{-30-63}$	5.5k	[2] ABLIKIM	13N	BES3	$e^+e^- \to J/\psi \to \gamma\eta\eta$
2339 ± 55		[3] ETKIN	88	MPS	$22\ \pi^- p \to \phi\phi n$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2350 ± 7	80k	[4] UMAN	06	E835	$5.2\ \bar{p}p \to \eta\eta\pi^0$
2412^{+28}_{-32}		[5] LONGACRE	04	RVUE	$22\ \pi^- p \to \phi\phi n$, 450 $pp \to p_f 4\pi p_s$
2392 ± 10		BOOTH	86	OMEG	$85\ \pi^-$ Be $\to 2\phi$ Be
2360 ± 20		LINDENBAUM	84	RVUE	

[1] From a partial wave analysis of the systems (γX), with $X \to \eta'\eta'$, and $(\eta' X)$, with $X \to \gamma\eta'$ in the decay $J/\psi \to \gamma\eta'\eta'$. The intermediate resonance X is parametrized by a constant-width, relativistic Breit-Wigner. NODE=M108M;LINKAGE=B

[2] From partial wave analysis including all possible combinations of 0^{++}, 2^{++}, and 4^{++} resonances. NODE=M108M;LINKAGE=A

[3] Includes data of ETKIN 85. The percentage of the resonance going into $\phi\phi$ 2^{++} S_2, D_2, and D_0 is 37 ± 19, 4^{+12}_{-4}, and 59^{+21}_{-19}, respectively. NODE=M108M;LINKAGE=C

[4] Statistical error only. NODE=M108M;LINKAGE=ST

[5] From a four pole K-matrix reanalysis of ETKIN 88 and BARBERIS 00C data. NODE=M108M;LINKAGE=D

$f_2(2340)$ WIDTH

NODE=M108W

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
331^{+27}_{-18} OUR AVERAGE					
$332 \pm 14^{+26}_{-12}$		[1] ABLIKIM	22C	BES3	$J/\psi \to \gamma\eta'\eta' \to 4/5\gamma 2(\pi^+\pi^-)$
$334^{+62+165}_{-54-100}$	5.5k	[2] ABLIKIM	13N	BES3	$e^+e^- \to J/\psi \to \gamma\eta\eta$
319^{+81}_{-69}		[3] ETKIN	88	MPS	$22\ \pi^- p \to \phi\phi n$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
218 ± 16	80k	[4] UMAN	06	E835	$5.2\ \bar{p}p \to \eta\eta\pi^0$
362^{+100}_{-53}		[5] LONGACRE	04	RVUE	$22\ \pi^- p \to \phi\phi n$, 450 $pp \to p_f 4\pi p_s$
198 ± 50		BOOTH	86	OMEG	$85\ \pi^-$ Be $\to 2\phi$ Be
150^{+150}_{-50}		LINDENBAUM	84	RVUE	

[1] From a partial wave analysis of the systems (γX), with $X \to \eta'\eta'$, and $(\eta' X)$, with $X \to \gamma\eta'$ in the decay $J/\psi \to \gamma\eta'\eta'$. The intermediate resonance X is parametrized by a constant-width, relativistic Breit-Wigner. NODE=M108W;LINKAGE=B

[2] From partial wave analysis including all possible combinations of 0^{++}, 2^{++}, and 4^{++} resonances. NODE=M108W;LINKAGE=A

[3] Includes data of ETKIN 85. NODE=M108W;LINKAGE=C

[4] Statistical error only. NODE=M108W;LINKAGE=ST

[5] From a four pole K-matrix reanalysis of ETKIN 88 and BARBERIS 00C data. NODE=M108W;LINKAGE=D

$f_2(2340)$ DECAY MODES

NODE=M108215;NODE=M108

	Mode	Fraction (Γ_i/Γ)	
Γ_1	$\phi\phi$	seen	DESIG=1;OUR EST;→ UNCHECKED ←
Γ_2	$\eta\eta$	seen	DESIG=2
Γ_3	$\eta'\eta'$	seen	DESIG=3

$f_2(2340)$ BRANCHING RATIOS

NODE=M108220

$\Gamma(\eta\eta)/\Gamma_{total}$ Γ_2/Γ

NODE=M108R01
NODE=M108R01

VALUE	DOCUMENT ID		TECN	COMMENT
seen	UMAN	06	E835	5.2 $\bar{p}p \rightarrow \eta\eta\pi^0$

$\Gamma(\eta'\eta')/\Gamma_{total}$ Γ_3/Γ

NODE=M108R00
NODE=M108R00

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[1] ABLIKIM	22C	BES3	$J/\psi \rightarrow \gamma\eta'\eta' \rightarrow 4/5\gamma 2(\pi^+\pi^-)$

[1] From a partial wave analysis of the systems (γX), with $X \rightarrow \eta'\eta'$, and $(\eta' X)$, with $X \rightarrow \gamma\eta'$ in the decay $J/\psi \rightarrow \gamma\eta'\eta'$. The intermediate resonance X is parametrized by a constant-width, relativistic Breit-Wigner.

NODE=M108R00;LINKAGE=A

$f_2(2340)$ REFERENCES

NODE=M108

ABLIKIM	22C	PR D105 072002	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61637
ABLIKIM	13N	PR D87 092009	M. Ablikim *et al.*	(BESIII Collab.)	REFID=55387
UMAN	06	PR D73 052009	I. Uman *et al.*	(FNAL E835)	REFID=51063
LONGACRE	04	PR D70 094041	R.S. Longacre, S.J. Lindenbaum	(BNL, CUNY)	REFID=50341
BARBERIS	00C	PL B471 440	D. Barberis *et al.*	(WA 102 Collab.)	REFID=47959
ETKIN	88	PL B201 568	A. Etkin *et al.*	(BNL, CUNY)	REFID=40285
BOOTH	86	NP B273 677	P.S.L. Booth *et al.*	(LIVP, GLAS, CERN)	REFID=21870
ETKIN	85	PL 165B 217	A. Etkin *et al.*	(BNL, CUNY)	REFID=21871
LINDENBAUM	84	CNPP 13 285	S.J. Lindenbaum	(CUNY)	REFID=21869