

$f_2(2300)$

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

NODE=M107

 $f_2(2300)$ MASS

NODE=M107M

NODE=M107M

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
2297±28	¹ ETKIN	88 MPS	22 $\pi^- p \rightarrow \phi \phi n$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
2262± 4±28	² ABLIKIM	21AI BES3	3.51–4.60 $e^+ e^- \rightarrow \phi \Lambda \bar{\Lambda}$
2243 ⁺ _{−6} ⁷ _{−29}	³ UEHARA	13 BELL	$\gamma\gamma \rightarrow K_S^0 K_S^0$
2270±12	VLADIMIRSK...	06 SPEC	40 $\pi^- p \rightarrow K_S^0 K_S^0 n$
2327± 9± 6	ABE	04 BELL	10.6 $e^+ e^- \rightarrow e^+ e^- K^+ K^-$
2340±13	⁴ LONGACRE	04 RVUE	22 $\pi^- p \rightarrow \phi \phi n$, 450 $pp \rightarrow p_f 4\pi p_s$
2231±10	BOOTH	86 OMEG	85 $\pi^- \text{Be} \rightarrow 2\phi \text{Be}$
2220 ⁺ _{−20}	LINDENBAUM	84 RVUE	
2320±40	ETKIN	82 MPS	22 $\pi^- p \rightarrow 2\phi n$

¹ Includes data of ETKIN 85. The percentage of the resonance going into $\phi\phi 2^{++} S_2$, D_2 , and D_0 is 6^{+15}_{-5} , 25^{+18}_{-14} , and 69^{+16}_{-27} , respectively.

² Threshold enhancement in $\Lambda\bar{\Lambda}$, preferred J^{PC} are 2^{++} , 2^{-+} , or 1^{++} . Could be another state.

³ Spin 2 preferred, tentatively assigned to $f_2(2300)$.

⁴ From a four pole K-matrix reanalysis of ETKIN 88 and BARBERIS 00C data.

NODE=M107M;LINKAGE=C

NODE=M107M;LINKAGE=B

NODE=M107M;LINKAGE=A

NODE=M107M;LINKAGE=D

 $f_2(2300)$ WIDTH

NODE=M107W

NODE=M107W

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
149±41	¹ ETKIN	88 MPS	22 $\pi^- p \rightarrow \phi \phi n$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
72± 5±43	² ABLIKIM	21AI BES3	3.51–4.60 $e^+ e^- \rightarrow \phi \Lambda \bar{\Lambda}$
145±12 ⁺ _{−34}	³ UEHARA	13 BELL	$\gamma\gamma \rightarrow K_S^0 K_S^0$
90±29	VLADIMIRSK...	06 SPEC	40 $\pi^- p \rightarrow K_S^0 K_S^0 n$
275±36±20	ABE	04 BELL	10.6 $e^+ e^- \rightarrow e^+ e^- K^+ K^-$
148 ⁺ _{−32}	⁴ LONGACRE	04 RVUE	22 $\pi^- p \rightarrow \phi \phi n$, 450 $pp \rightarrow p_f 4\pi p_s$
133±50	BOOTH	86 OMEG	85 $\pi^- \text{Be} \rightarrow 2\phi \text{Be}$
200±50	LINDENBAUM	84 RVUE	
220±70	ETKIN	82 MPS	22 $\pi^- p \rightarrow 2\phi n$

¹ Includes data of ETKIN 85.

² Threshold enhancement in $\Lambda\bar{\Lambda}$, preferred J^{PC} are 2^{++} , 2^{-+} , or 1^{++} . Could be another state.

³ Spin 2 preferred, tentatively assigned to $f_2(2300)$.

⁴ From a four pole K-matrix reanalysis of ETKIN 88 and BARBERIS 00C data.

NODE=M107W;LINKAGE=C

NODE=M107W;LINKAGE=B

NODE=M107W;LINKAGE=A

NODE=M107W;LINKAGE=D

 $f_2(2300)$ DECAY MODES

NODE=M107215;NODE=M107

Mode	Fraction (Γ_i/Γ)
Γ_1 $\phi\phi$	seen
Γ_2 $K\bar{K}$	seen
Γ_3 $\gamma\gamma$	seen
Γ_4 $\Lambda\bar{\Lambda}$	seen

DESIG=1

DESIG=2

DESIG=3

DESIG=4

 $f_2(2300)$ $\Gamma(i)\Gamma(\gamma\gamma)/\Gamma(\text{total})$

NODE=M107225

 $\Gamma(K\bar{K}) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ $\Gamma_2\Gamma_3/\Gamma$

VALUE (eV)	DOCUMENT ID	TECN	COMMENT
3.2 ⁺ _{−0.4} ^{0.5} _{−2.2}	UEHARA	13 BELL	$\gamma\gamma \rightarrow K_S^0 K_S^0$
44 ±6 ±12	¹ ABE	04 BELL	10.6 $e^+ e^- \rightarrow e^+ e^- K^+ K^-$

¹ Assuming spin 2.

NODE=M107G1

NODE=M107G1

NODE=M107G1;LINKAGE=AB

$f_2(2300)$ BRANCHING RATIOS **$\Gamma(\phi\phi)/\Gamma_{\text{total}}$**

VALUE	DOCUMENT ID	TECN	COMMENT
seen	BOOTH	86	OMEG 85 $\pi^- \text{Be} \rightarrow 2\phi \text{Be}$
seen	ETKIN	82	MPS 22 $\pi^- p \rightarrow 2\phi n$

 Γ_1/Γ

NODE=M107220

NODE=M107R01
NODE=M107R01 **$\Gamma(K\bar{K})/\Gamma_{\text{total}}$**

VALUE	DOCUMENT ID	TECN	COMMENT
seen	VLADIMIRSK...06	SPEC	40 $\pi^- p \rightarrow K_S^0 K_S^0 n$
seen	ABE	04	BELL 10.6 $e^+ e^- \rightarrow e^+ e^- K^+ K^-$

 Γ_2/Γ NODE=M107R02
NODE=M107R02 **$\Gamma(\gamma\gamma)/\Gamma_{\text{total}}$**

VALUE	DOCUMENT ID	TECN	COMMENT
seen	UEHARA	13	BELL $\gamma\gamma \rightarrow K_S^0 K_S^0$

 Γ_3/Γ NODE=M107R03
NODE=M107R03 **$\Gamma(\Lambda\bar{\Lambda})/\Gamma_{\text{total}}$**

VALUE	DOCUMENT ID	TECN	COMMENT
seen	¹ ABLIKIM	21A1	BES3 3.51–4.60 $e^+ e^- \rightarrow \phi \Lambda \bar{\Lambda}$

 Γ_4/Γ NODE=M107R00
NODE=M107R00

¹ Threshold enhancement in $\Lambda\bar{\Lambda}$, preferred J^{PC} are 2^{++} , 2^{-+} , or 1^{++} . Could be another state.

NODE=M107R00;LINKAGE=A

 $f_2(2300)$ REFERENCES

ABLIKIM	21A1	PR D104 052006	M. Ablikim <i>et al.</i>	(BESIII Collab.)
UEHARA	13	PTEP 2013 123C01	S. Uehara <i>et al.</i>	(BELLE Collab.)
VLADIMIRSK...06		PAN 69 493	V.V. Vladimirovsky <i>et al.</i>	(ITEP, Moscow)
		Translated from YAF 69 515.		
ABE	04	EPJ C32 323	K. Abe <i>et al.</i>	(BELLE Collab.)
LONGACRE	04	PR D70 094041	R.S. Longacre, S.J. Lindenbaum	(BNL, CUNY)
BARBERIS	00C	PL B471 440	D. Barberis <i>et al.</i>	(WA 102 Collab.)
ETKIN	88	PL B201 568	A. Etkin <i>et al.</i>	(BNL, CUNY)
BOOTH	86	NP B273 677	P.S.L. Booth <i>et al.</i>	(LIVP, GLAS, CERN)
ETKIN	85	PL 165B 217	A. Etkin <i>et al.</i>	(BNL, CUNY)
LINDENBAUM	84	CNPP 13 285	S.J. Lindenbaum	(CUNY)
ETKIN	82	PRL 49 1620	A. Etkin <i>et al.</i>	(BNL, CUNY)

NODE=M107

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