

**$f_2(2300)$** 

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

 **$f_2(2300)$  MASS**

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>2297±28</b>	<sup>1</sup> 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	<sup>2</sup> ABLIKIM	21AI	BES3 3.51–4.60 $e^+ e^- \rightarrow \phi \Lambda \bar{\Lambda}$
2243 <sup>+</sup> <sub>−</sub> 7 <sup>+</sup> <sub>−</sub> 3 <sub>−29</sub>	<sup>3</sup> 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	<sup>4</sup> 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 $\pi^- Be \rightarrow 2\phi Be$
2220 <sup>+90</sup> <sub>−20</sub>	LINDENBAUM	84	RVUE
2320±40	ETKIN	82	MPS 22 $\pi^- p \rightarrow 2\phi n$

<sup>1</sup> 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.

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

<sup>3</sup> Spin 2 preferred, tentatively assigned to  $f_2(2300)$ .

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

 **$f_2(2300)$  WIDTH**

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>149±41</b>	<sup>1</sup> 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	<sup>2</sup> ABLIKIM	21AI	BES3 3.51–4.60 $e^+ e^- \rightarrow \phi \Lambda \bar{\Lambda}$
145±12 <sup>+27</sup> <sub>−34</sub>	<sup>3</sup> 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 <sup>+66</sup> <sub>−32</sub>	<sup>4</sup> 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 $\pi^- Be \rightarrow 2\phi Be$
200±50	LINDENBAUM	84	RVUE
220±70	ETKIN	82	MPS 22 $\pi^- p \rightarrow 2\phi n$

<sup>1</sup> Includes data of ETKIN 85.

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

<sup>3</sup> Spin 2 preferred, tentatively assigned to  $f_2(2300)$ .

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

**$f_2(2300)$  DECAY MODES**

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $\phi\phi$	seen
$\Gamma_2$ $K\bar{K}$	seen
$\Gamma_3$ $\gamma\gamma$	seen
$\Gamma_4$ $\Lambda\bar{\Lambda}$	seen

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

$\Gamma(K\bar{K}) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$	$\Gamma_2\Gamma_3/\Gamma$		
VALUE (eV)	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
$3.2^{+0.5+1.3}_{-0.4-2.2}$	UEHARA	13	BELL $\gamma\gamma \rightarrow K_S^0 K_S^0$
$44 \pm 6 \pm 12$	<sup>1</sup> ABE	04	BELL $10.6 e^+ e^- \rightarrow e^+ e^- K^+ K^-$
<sup>1</sup> Assuming spin 2.			

 **$f_2(2300)$  BRANCHING RATIOS**

$\Gamma(\phi\phi)/\Gamma_{\text{total}}$	$\Gamma_1/\Gamma$		
VALUE	DOCUMENT ID	TECN	COMMENT
seen	BOOTH	86	OMEG $85 \pi^- \text{Be} \rightarrow 2\phi\text{Be}$
seen	ETKIN	82	MPS $22 \pi^- p \rightarrow 2\phi n$

$\Gamma(K\bar{K})/\Gamma_{\text{total}}$	$\Gamma_2/\Gamma$		
VALUE	DOCUMENT ID	TECN	COMMENT
seen	VLADIMIRSK...06	SPEC	$40 \pi^- p \rightarrow K_S^0 K_S^0 n$
seen	ABE	04	BELL $10.6 e^+ e^- \rightarrow e^+ e^- K^+ K^-$

$\Gamma(\gamma\gamma)/\Gamma_{\text{total}}$	$\Gamma_3/\Gamma$		
VALUE	DOCUMENT ID	TECN	COMMENT
seen	UEHARA	13	BELL $\gamma\gamma \rightarrow K_S^0 K_S^0$

$\Gamma(\Lambda\bar{\Lambda})/\Gamma_{\text{total}}$	$\Gamma_4/\Gamma$		
VALUE	DOCUMENT ID	TECN	COMMENT
seen	<sup>1</sup> ABLIKIM	21AI	BES3 $3.51\text{--}4.60 e^+ e^- \rightarrow \phi\Lambda\bar{\Lambda}$
<sup>1</sup> Threshold enhancement in $\Lambda\bar{\Lambda}$ , preferred $J^{PC}$ are $2^{++}$ , $2^{-+}$ , or $1^{++}$ . Could be another state.			

 **$f_2(2300)$  REFERENCES**

ABLIKIM	21AI	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)
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)

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