$f_2(1565)$ was $f_2(1520)$

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

OMITTED FROM SUMMARY TABLE

Seen in antinucleon-nucleon annihilation at rest. See also minireview under non-$q\overline{q}$ candidates. Needs confirmation.

$f_2(1565)$ MASS

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
1565±20	MAY	90	ASTE	$\overline{p}p \rightarrow \pi^+\pi^-\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1534±20	[1] ABELE	96C	RVUE	
~ 1552	[2] AMSLER	95D	CBAR	0.0 $\overline{p}p \rightarrow \pi^0\pi^0\pi^0$, $\pi^0\eta\eta$, $\pi^0\pi^0\eta$
1598±72	BALOSHIN	95	SPEC	40 $\pi^- C \rightarrow K^0_S K^0_S X$
1566^{+80}_{-50}	[3] ANISOVICH	94	CBAR	0.0 $\overline{p}p \rightarrow 3\pi^0, \eta\eta\pi^0$
1502± 9	ADAMO	93	OBLX	$\overline{n}p \rightarrow \pi^+\pi^+\pi^-$
1488±10	[4] ARMSTRONG	93C	SPEC	$\overline{p}p \rightarrow \pi^0\eta\eta \rightarrow 6\gamma$
1508±10	[4] ARMSTRONG	93D	SPEC	$\overline{p}p \rightarrow 3\pi^0 \rightarrow 6\gamma$
1525±10	[4] ARMSTRONG	93D	SPEC	$\overline{p}p \rightarrow \eta\pi^0\pi^0 \rightarrow 6\gamma$
~ 1504	[5] WEIDENAUER	93	ASTE	0.0 $\overline{p}N \rightarrow 3\pi^- 2\pi^+$
1540±15	[4] ADAMO	92	OBLX	$\overline{n}p \rightarrow \pi^+\pi^+\pi^-$
1515±10	[6] AKER	91	CBAR	0.0 $\overline{p}p \rightarrow 3\pi^0$
1477± 5	BRIDGES	86C	DBC	0.0 $\overline{p}N \rightarrow 3\pi^- 2\pi^+$

[1] T-matrix pole, large coupling to $\rho\rho$ and $\omega\omega$, could be $f_2(1640)$.
[2] Coupled-channel analysis of AMSLER 95B, AMSLER 95C, and AMSLER 94D.
[3] From a simultaneous analysis of the annihilations $\overline{p}p \rightarrow 3\pi^0, \pi^0\eta\eta$ including AKER 91 data.
[4] J^P not determined, could be partly $f_0(1500)$.
[5] J^P not determined.
[6] Superseded by AMSLER 95B,

$f_2(1565)$ WIDTH

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
170± 40	MAY	90	ASTE	$\overline{p}p \rightarrow \pi^+\pi^-\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
180± 60	[7,8] ABELE	96C	RVUE	
~ 142	[9] AMSLER	95D	CBAR	0.0 $\overline{p}p \rightarrow \pi^0\pi^0\pi^0$, $\pi^0\eta\eta$, $\pi^0\pi^0\eta$
263±101	BALOSHIN	95	SPEC	40 $\pi^- C \rightarrow K^0_S K^0_S X$
166^{+80}_{-20}	[10] ANISOVICH	94	CBAR	0.0 $\overline{p}p \rightarrow 3\pi^0, \eta\eta\pi^0$
130± 10	[11] ADAMO	93	OBLX	$\overline{n}p \rightarrow \pi^+\pi^+\pi^-$
148± 27	[12] ARMSTRONG	93C	SPEC	$\overline{p}p \rightarrow \pi^0\eta\eta \rightarrow 6\gamma$

103± 15	[12] ARMSTRONG	93D	SPEC	$\overline{p}p \to 3\pi^0 \to 6\gamma$
111± 10	[12] ARMSTRONG	93D	SPEC	$\overline{p}p \to \eta\pi^0\pi^0 \to 6\gamma$
∼ 206	[13] WEIDENAUER	93	ASTE	$0.0\ \overline{p}N \to 3\pi^- 2\pi^+$
132± 37	[12] ADAMO	92	OBLX	$\overline{n}p \to \pi^+\pi^+\pi^-$
120± 10	[14] AKER	91	CBAR	$0.0\ \overline{p}p \to 3\pi^0$
116± 9	BRIDGES	86C	DBC	$0.0\ \overline{p}N \to 3\pi^- 2\pi^+$

[8] T-matrix pole, large coupling to $\rho\rho$ and $\omega\omega$, could be $f_2(1640)$.
[9] Coupled-channel analysis of AMSLER 95B, AMSLER 95C, and AMSLER 94D.
[10] From a simultaneous analysis of the annihilations $\overline{p}p \to 3\pi^0$, $\pi^0\eta\eta$ including AKER 91 data.
[11] Supersedes ADAMO 92.
[12] J^P not determined, could be partly $f_0(1500)$.
[13] J^P not determined.
[14] Superseded by AMSLER 95B,

$f_2(1565)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\pi^+\pi^-$	seen
Γ_2	$\rho^0\rho^0$	seen
Γ_3	$\pi^0\pi^0$	seen
Γ_4	$2\pi^+2\pi^-$	seen
Γ_5	$\eta\eta$	seen

$f_2(1565)$ BRANCHING RATIOS

$\Gamma(\pi^+\pi^-)/\Gamma_{total}$ — Γ_1/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
not seen	[15] ANISOVICH	94B	RVUE	$\overline{p}p \to \pi^+\pi^-\pi^0$
seen	MAY	89	ASTE	$\overline{p}p \to \pi^+\pi^-\pi^0$

[15] ANISOVICH 94B is from a reanalysis of MAY 90.

$\Gamma(\pi^+\pi^-)/\Gamma(\rho^0\rho^0)$ — Γ_1/Γ_2

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.042±0.013	BRIDGES	86B	DBC	$\overline{p}N \to 3\pi^- 2\pi^+$

$\Gamma(\pi^0\pi^0)/\Gamma_{total}$ — Γ_3/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
seen	AMSLER	95B	CBAR	$0.0\ \overline{p}p \to 3\pi^0$

$\Gamma(\eta\eta)/\Gamma(\pi^0\pi^0)$ — Γ_5/Γ_3

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.024±0.005±0.012	[16] ARMSTRONG	93C	SPEC	$\overline{p}p \to \pi^0\eta\eta \to 6\gamma$

[16] J^P not determined, could be partly $f_0(1500)$.

$f_2(1565)$ REFERENCES

ABELE	96C	NP A609 562		
AMSLER	95B	PL B342 433	+Armstrong, Brose+	(Crystal Barrel Collab.)
AMSLER	95C	PL B353 571	+Armstrong, Hackman+	(Crystal Barrel Collab.)
AMSLER	95D	PL B355 425	+Armstrong, Spanier+	(Crystal Barrel Collab.)
BALOSHIN	95	PAN 58 46	+Bolonkin, Vladimirskii+	(ITEP)
		Translated from YAF 58 50.		
AMSLER	94D	PL B333 277	+Anisovich, Spanier+	(Crystal Barrel Collab.)
ANISOVICH	94	PL B323 233	+Armstrong+	(Crystal Barrel Collab.)
ANISOVICH	94B	PR D50 1972	+Bugg+	(LOQM)
ADAMO	93	NP A558 13C	+Agnello+	(OBELIX Collab.)
ARMSTRONG	93C	PL B307 394	+Bettoni+	(FNAL, FERR, GENO, UCI, NWES+)
ARMSTRONG	93D	PL B307 399	+Bettoni+	(FNAL, FERR, GENO, UCI, NWES+)
WEIDENAUER	93	ZPHY C59 387	+Duch+	(ASTERIX Collab.)
ADAMO	92	PL B287 368	+Agnello, Balestra+	(OBELIX Collab.)
AKER	91	PL B260 249	+Amsler, Peters+	(Crystal Barrel Collab.)
MAY	90	ZPHY C46 203	+Duch, Heel+	(ASTERIX Collab.)
MAY	89	PL B225 450	+Duch, Heel+	(ASTERIX Collab.) IJP
BRIDGES	86B	PRL 56 215	+Daftari, Kalogeropoulos, Debbe+	(SYRA, CASE)
BRIDGES	86C	PRL 57 1534	+Daftari, Kalogeropoulos+	(SYRA)