Further States

NODE=M300

OMITTED FROM SUMMARY TABLE

This section contains states observed by a single group or states poorly established that thus need confirmation.

NODE=M300

QUANTUM NUMBERS, MASSES, WIDTHS, AND BRANCHING RATIOS

X(360) $I^G(J^{PC}) = ?^?(?^{?+})$

NODE=M300K08
NODE=M300K08

MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
$360 \pm 7 \pm 9$	64 ± 18	2.3k	[1] ABRAAMYAN 09	CNTR	2.75 $dC \to \gamma\gamma X$

[1] Not seen in $pC \to \gamma\gamma X$ at 5.5 GeV/c.

NODE=M300K08;LINKAGE=AB

X(1070) $I^G(J^{PC}) = ?^?(0^{++})$

NODE=M300J07
NODE=M300J07

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	COMMENT
1072 ± 1	3.5 ± 0.5	[1] VLADIMIRSK...08	40 $\pi^- p \to K^0_S K^0_S n + m\pi^0$

[1] Supersedes GRIGOR'EV 05.

NODE=M300J07;LINKAGE=VL

X(1110) $I^G(J^{PC}) = 0^+(\text{even}^{++})$

NODE=M300J30
NODE=M300J30

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
1107 ± 4	$111 \pm 8 \pm 15$	DAFTARI 87	DBC	0. $\bar{p} n \to \rho^- \pi^+ \pi^-$

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f_0(1200–1600) $I^G(J^{PC}) = 0^+(0^{++})$

NODE=M300J98
NODE=M300J98

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
1323 ± 8	237 ± 20	VLADIMIRSK...06	SPEC	40 $\pi^- p \to K^0_S K^0_S n$
1480^{+100}_{-150}	1030^{+80}_{-170}	[1] ANISOVICH 03	SPEC	
1530^{+90}_{-250}	560 ± 40	[2] ANISOVICH 03	SPEC	

OCCUR=2

[1] K-matrix pole from combined analysis of $\pi^- p \to \pi^0 \pi^0 n$, $\pi^- p \to K \overline{K} n$, $\pi^+ \pi^- \to \pi^+ \pi^-$, $\bar{p} p \to \pi^0 \pi^0 \pi^0$, $\pi^0 \eta\eta$, $\pi^0 \pi^0 \eta$, $\pi^+ \pi^- \pi^0$, $K^+ K^- \pi^0$, $K^0_S K^0_S \pi^0$, $K^+ K^0_S \pi^-$ at rest, $\bar{p} n \to \pi^- \pi^- \pi^+$, $K^0_S K^- \pi^0$, $K^0_S K^0_S \pi^-$ at rest.

NODE=M300;LINKAGE=KM

[2] K-matrix pole from combined analysis of $\pi^- p \to \pi^0 \pi^0 n$, $\pi^- p \to K \overline{K} n$, $\bar{p} p \to \pi^0 \pi^0 \pi^0$, $\pi^0 \eta\eta$, $\pi^0 \pi^0 \eta$ at rest.

NODE=M300;LINKAGE=MK

X(1420) $I^G(J^{PC}) = 2^+(0^{++})$

NODE=M300J61
NODE=M300J61

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
1420 ± 20	160 ± 10	FILIPPI 00	OBLX	0 $\bar{n} p \to \pi^+ \pi^+ \pi^-$

X(1545) $I^G(J^{PC}) = ?^?(?^{++})$

NODE=M300K07
NODE=M300K07

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	COMMENT
1545 ± 3	6.0 ± 2.5	[1] VLADIMIRSK...08	40 $\pi^- p \to K^0_S K^0_S n + m\pi^0$

[1] Supersedes VLADIMIRSKII 00.

NODE=M300K07;LINKAGE=VL

X(1575) $I^G(J^{PC}) = ?^?(1^{--})$

NODE=M300J08
NODE=M300J08

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
1576^{+49+98}_{-55-91}	$818^{+22+64}_{-23-133}$	[1] ABLIKIM 06S	BES	$J/\psi \to K^+ K^- \pi^0$

[1] A broad peak observed at $K^+ K^-$ invariant mass. Mass and width above are its pole position. The observed branching ratio is $B(J/\psi \to X \pi^0)\, B(X \to K^+ K^-) = (8.5 \pm 0.6^{+2.7}_{-3.6}) \times 10^{-4}$.

NODE=M300J08;LINKAGE=AB

X(1600) $I^G(J^{PC}) = 2^+(2^{++})$

NODE=M300J99
NODE=M300J99

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
1600 ± 100	400 ± 200	[1] ALBRECHT 91F	ARG	10.2 $e^+ e^- \to e^+ e^- 2(\pi^+ \pi^-)$

[1] Our estimate. NODE=M300J99;LINKAGE=A

X(1650) $I^G(J^{PC}) = 0^-(?^{?-})$ NODE=M300J62 NODE=M300J62

MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
1652±7	<50	100	PROKOSHKIN 96	GAM2	32,38 $\pi p \to \omega \eta n$

X(1730) $I^G(J^{PC}) = ?^?(?^{?+})$ NODE=M300K06 NODE=M300K06

MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
1731.0±1.2±2.0	3.2 ± 0.8 ± 1.3	58	VLADIMIRSK...07	SPEC	40 $\pi^- p \to K^0_S K^0_S X$

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f_2(1750) $I^G(J^{PC}) = 0^+(2^{++})$ NODE=M300JAM NODE=M300JAM

MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
1755±10	67 ± 12	870	[1] SCHEGELSKY 06A	RVUE	$\gamma\gamma \to K^0_S K^0_S$

Γ($K\overline{K}$) NODE=M300JA1 NODE=M300JA1

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
17±5	870	[2] SCHEGELSKY 06A	RVUE	$\gamma\gamma \to K^0_S K^0_S$

Γ($\gamma\gamma$) NODE=M300JA2 NODE=M300JA2

VALUE (keV)	EVTS	DOCUMENT ID	TECN	COMMENT
0.13±0.04	870	[2] SCHEGELSKY 06A	RVUE	$\gamma\gamma \to K^0_S K^0_S$

Γ($\pi\pi$) NODE=M300JA3 NODE=M300JA3

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
1.3±1.0	870	[2] SCHEGELSKY 06A	RVUE	$\gamma\gamma \to K^0_S K^0_S$

Γ($\eta\eta$) NODE=M300JA4 NODE=M300JA4

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
2.0±0.5	870	[2] SCHEGELSKY 06A	RVUE	$\gamma\gamma \to K^0_S K^0_S$

[1] From analysis of L3 data at 91 and 183–209 GeV. NODE=M300JAM;LINKAGE=SC
[2] From analysis of L3 data at 91 and 183–209 GeV and using SU(3) relations. NODE=M300JA;LINKAGE=SC

X(1775) $I^G(J^{PC}) = 1^-(?^{-+})$ NODE=M300J60 NODE=M300J60

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1763±20	192 ± 60	CONDO	91	SHF	$\gamma p \to (p\pi^+)(\pi^+\pi^-\pi^-)$
1787±18	118 ± 60	CONDO	91	SHF	$\gamma p \to n\pi^+\pi^+\pi^-$ OCCUR=2

X(1850 - 3100) $I^G(J^{PC}) = ?^?(1^{--})$ NODE=M300K28 NODE=M300K28

$\Gamma(e^+e^-)\cdot B(X \to hadrons)$ (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<120	90	[1] ANASHIN	11	KEDR	$e^+e^- \to$ hadrons

[1] This limit is center-of-mass energy dependent. We quote the most stringent one. NODE=M300K28;LINKAGE=AN

X(1855) $I^G(J^{PC}) = ?^?(?^{??})$ NODE=M300J31 NODE=M300J31

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1856.6±5	20 ± 5	BRIDGES	86D	SPEC	0. $\overline{p}d \to \pi\pi N$

X(1870) $I^G(J^{PC}) = ?^?(2^{??})$ NODE=M300J45 NODE=M300J45

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1870±40	250 ± 30	ALDE	86D	GAM4	100 $\pi^- p \to 2\eta X$

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a_3(1875) $I^G(J^{PC}) = 1^-(3^{++})$ NODE=M300J95 NODE=M300J95

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1874±43±96	385 ± 121 ± 114	CHUNG	02	B852	18.3 $\pi^- p \to \pi^+\pi^-\pi^- p$

B(a_3(1875) → f_2(1270)π)/B(a_3(1875) → $\rho\pi$) NODE=M300B7 NODE=M300B7

VALUE	DOCUMENT ID		TECN	COMMENT
0.8±0.2	[1] CHUNG	02	B852	18.3 $\pi^- p \to \pi^+ \pi^- \pi^- p$

[1] Using the observable fractions of 50.0% $\rho\pi$, 56.5% $f_2\pi$, and 11.8% $\rho_3\pi$. NODE=M300B;LINKAGE=C1

B(a_3(1875) → ρ_3(1690)π)/B(a_3(1875) → $\rho\pi$) NODE=M300B8 NODE=M300B8

VALUE	DOCUMENT ID		TECN	COMMENT
0.9±0.3	[1] CHUNG	02	B852	18.3 $\pi^- p \to \pi^+ \pi^- \pi^- p$

[1] Using the observable fractions of 50.0% $\rho\pi$, 56.5% $f_2\pi$, and 11.8% $\rho_3\pi$. NODE=M300B8;LINKAGE=C1

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a_1(1930) $I^G(J^{PC}) = 1^-(1^{++})$ NODE=M300J92 NODE=M300J92

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1930^{+30}_{-70}	155 ± 45	ANISOVICH	01F	SPEC	2.0 $\bar{p}p \to 3\pi^0, \pi^0\eta, \pi^0\eta'$

X(1935) $I^G(J^{PC}) = 1^+(1^{-?})$ NODE=M300J33 NODE=M300J33

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1935±20	215 ± 30	EVANGELIS...	79	OMEG	10,16 $\pi^- p \to \bar{p}pn$

ρ_2(1940) $I^G(J^{PC}) = 1^+(2^{--})$ NODE=M300J85 NODE=M300J85

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1940±40	155 ± 40	[1] ANISOVICH	02	SPEC	0.6–1.9 $p\bar{p} \to \omega\pi^0, \omega\eta\pi^0, \pi^+\pi^-$

[1] From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02. NODE=M300J85;LINKAGE=AY

ω_3(1945) $I^G(J^{PC}) = 0^-(3^{--})$ NODE=M300J65 NODE=M300J65

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1945±20	115 ± 22	[1] ANISOVICH	02B	SPEC	0.6–1.9 $p\bar{p} \to \omega\eta, \omega\pi^0\pi^0$

[1] From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B. NODE=M300J65;LINKAGE=AZ

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a_2(1950) $I^G(J^{PC}) = 1^-(2^{++})$ NODE=M300K24 NODE=M300K24

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1950^{+30}_{-70}	180^{+30}_{-70}	[1] ANISOVICH	01F	SPEC	1.96–2.41 $\bar{p}p$

[1] From the combined analysis of ANISOVICH 99C, ANISOVICH 99E, and ANISOVICH 01F. NODE=M300K24;LINKAGE=AN

ω(1960) $I^G(J^{PC}) = 0^-(1^{--})$ NODE=M300J79 NODE=M300J79

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1960±25	195 ± 60	[1] ANISOVICH	02B	SPEC	0.6–1.9 $p\bar{p} \to \omega\eta, \omega\pi^0\pi^0$

[1] From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B. NODE=M300J79;LINKAGE=AZ

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b_1(1960) $I^G(J^{PC}) = 1^+(1^{+-})$ NODE=M300J67 NODE=M300J67

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1960±35	230 ± 50	[1] ANISOVICH	02	SPEC	0.6–1.9 $p\bar{p} \to \omega\pi^0, \omega\eta\pi^0, \pi^+\pi^-$

[1] From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02. NODE=M300J67;LINKAGE=AY

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h_1(1965) $I^G(J^{PC}) = 0^-(1^{+-})$ NODE=M300J64 NODE=M300J64

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1965±45	345 ± 75	[1] ANISOVICH	02B	SPEC	0.6–1.9 $p\bar{p} \to \omega\eta, \omega\pi^0\pi^0$

[1] From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B. NODE=M300J64;LINKAGE=AZ

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f_1(1970) $I^G(J^{PC}) = 0^+(1^{++})$ NODE=M300J1 NODE=M300J1

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN
1971±15	240 ± 45	ANISOVICH	00J	SPEC

X(1970) $I^G(J^{PC}) = ?^?(?^{??})$ NODE=M300J46 NODE=M300J46

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1970±10	40 ± 20	CHLIAPNIK...	80	HBC	32 $K^+ p \to 2K^0_S 2\pi X$

X(1975) $I^G(J^{PC}) = ?^?(?^{??})$ NODE=M300J47 NODE=M300J47

MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
1973±15	80	30	CASO	70	HBC	11.2 $\pi^- p \to \rho 2\pi$

ω_2(1975) $I^G(J^{PC}) = 0^-(2^{--})$ NODE=M300J81 NODE=M300J81

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1975±20	175 ± 25	[1] ANISOVICH	02B	SPEC	0.6–1.9 $p\bar{p} \to \omega\eta, \omega\pi^0\pi^0$

[1] From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B. NODE=M300J81;LINKAGE=AZ

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a_2(1990) $I^G(J^{PC}) = 1^-(2^{++})$ NODE=M300J2 NODE=M300J2

MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
2050±10±40	190 ± 22 ± 100	18k	[1] SCHEGELSKY	06	RVUE	$\gamma\gamma \to \pi^+\pi^-\pi^0$
2003±10±19	249 ± 23 ± 32		LU	05	B852	18 $\pi^- p \to \omega\pi^-\pi^0 p$

[1] From analysis of L3 data at 183–209 GeV. NODE=M300J2;LINKAGE=SC

$\Gamma(\gamma\gamma)\ \Gamma(\pi^+\pi^-\pi^0)$ / Γ(total) NODE=M300J2G NODE=M300J2G

VALUE (keV)	EVTS	DOCUMENT ID		TECN	COMMENT
0.11±0.04±0.05	18k	[1] SCHEGELSKY	06	RVUE	$\gamma\gamma \to \pi^+\pi^-\pi^0$

[1] From analysis of L3 data at 183–209 GeV. NODE=M300J2G;LINKAGE=SC

ρ(2000) $I^G(J^{PC}) = 1^+(1^{--})$ NODE=M300J77 NODE=M300J77

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2000±30	260 ± 45	[1] BUGG	04C	RVUE	Compilation
∼ 1988	∼ 244	HASAN	94	RVUE	$\bar{p}p \to \pi\pi$

[1] From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02. NODE=M300;LINKAGE=AY

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f_2(2000) $I^G(J^{PC}) = 0^+(2^{++})$ NODE=M300J25 NODE=M300J25

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2001±10	312 ± 32	ANISOVICH	00J	SPEC	
∼ 1996	∼ 134	HASAN	94	RVUE	$\bar{p}p \to \pi\pi$

X(2000) $I^G(J^{PC}) = 1^-(?^{?+})$ NODE=M300K01 NODE=M300K01

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	CHG	COMMENT
1964±35	225 ± 50	[1] ARMSTRONG	93D	E760		$\bar{p}p \to 3\pi^0 \to 6\gamma$
∼ 2100	∼ 500	[1] ANTIPOV	77	CIBS	−	25 $\pi^- p \to p\pi^-\rho_3$
2214±15	355 ± 21	[2] BALTAY	77	HBC	0	15 $\pi^- p \to \Delta^{++} 3\pi$
2080±40	340 ± 80	KALELKAR	75	HBC	+	15 $\pi^+ p \to p\pi^+\rho_3$

[1] Cannot determine spin to be 3. NODE=M300K01;LINKAGE=AA
[2] BALTAY 77 favors $J^P = ,3^+$. NODE=M300K01;LINKAGE=B

X(2000) $I^G(J^{PC}) = ?^?(4^{++})$ NODE=M300J97 NODE=M300J97

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1998±3±5	<15	VLADIMIRSK...	03	SPEC	$\pi^- p \to K^0_S K^0_S M M$

$\eta(2010)$ $I^G(J^{PC}) = 0^+(0^{-+})$ NODE=M300J5 NODE=M300J5

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN
2010^{+35}_{-60}	270 ± 60	ANISOVICH	00J	SPEC

$\pi_1(2015)$ $I^G(J^{PC}) = 1^-(1^{-+})$ NODE=M300J05 NODE=M300J05

MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
2014±20±16	230 ± 32 ± 73	145k	LU	05	B852	18 $\pi^- p \to \omega\pi^-\pi^0 p$
2001±30±92	333 ± 52 ± 49	69k	KUHN	04	B852	18 $\pi^- p \to \eta\pi^+\pi^-\pi^- p$

$a_0(2020)$ $I^G(J^{PC}) = 1^-(0^{++})$ NODE=M300J6 NODE=M300J6

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN
2025±30	330 ± 75	ANISOVICH	99C	SPEC

$X(2020)$ $I^G(J^{PC}) = ?^?(?^{??})$ NODE=M300J34 NODE=M300J34

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2015±3	10 ± 4	FERRER	99	RVUE	$\pi p \to p p \overline{p} \pi(\pi)$

$h_3(2025)$ $I^G(J^{PC}) = 0^-(3^{+-})$ NODE=M300J78 NODE=M300J78

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2025±20	145 ± 30	[1] ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta, \omega\pi^0\pi^0$

[1] From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B. NODE=M300J78;LINKAGE=AZ

$b_3(2030)$ $I^G(J^{PC}) = 1^+(3^{+-})$ NODE=M300J69 NODE=M300J69

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2032±12	117 ± 11	[1] ANISOVICH	02	SPEC	0.6–1.9 $p\overline{p} \to \omega\pi^0$, $\omega\eta\pi^0$, $\pi^+\pi^-$

[1] From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02. NODE=M300J69;LINKAGE=AY

$a_2(2030)$ $I^G(J^{PC}) = 1^-(2^{++})$ NODE=M300K23 NODE=M300K23

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2030±20	205 ± 30	[1] ANISOVICH	01F	SPEC	1.96–2.41 $\overline{p}p$

[1] From the combined analysis of ANISOVICH 99C, ANISOVICH 99E, and ANISOVICH 01F. NODE=M300K23;LINKAGE=AN

$a_3(2030)$ $I^G(J^{PC}) = 1^-(3^{++})$ NODE=M300K20 NODE=M300K20

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2031±12	150 ± 18	[1] ANISOVICH	01F	SPEC	1.96–2.41 $\overline{p}p$

[1] From the combined analysis of ANISOVICH 99C, ANISOVICH 99E, and ANISOVICH 01F. NODE=M300K20;LINKAGE=AN

$\eta_2(2030)$ $I^G(J^{PC}) = 0^+(2^{-+})$ NODE=M300J8 NODE=M300J8

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN
2030±5±15	205 ± 10 ± 15	ANISOVICH	00E	SPEC

$B(a_2\pi)_{L=0}/B(a_2\pi)_{L=2}$ NODE=M300B1 NODE=M300B1

VALUE	DOCUMENT ID		TECN	COMMENT
0.05±0.03	[1] ANISOVICH	11	SPEC	0.9–1.94 $p\overline{p}$

[1] Reanalysis of ADOMEIT 96 and ANISOVICH 00E. NODE=M300B1;LINKAGE=AN

$B(a_0\pi)/B(a_2\pi)_{L=2}$ NODE=M300B2 NODE=M300B2

VALUE	DOCUMENT ID		TECN	COMMENT
0.10±0.08	[1] ANISOVICH	11	SPEC	0.9–1.94 $p\overline{p}$

[1] Reanalysis of ADOMEIT 96 and ANISOVICH 00E. NODE=M300B2;LINKAGE=AN

$B(f_2\eta)/B(a_2\pi)_{L=2}$

VALUE	DOCUMENT ID		TECN	COMMENT
0.13±0.06	[1] ANISOVICH	11	SPEC	0.9–1.94 $p\overline{p}$

[1] Reanalysis of ADOMEIT 96 and ANISOVICH 00E.

NODE=M300B3
NODE=M300B3
NODE=M300B3;LINKAGE=AN

$f_3(2050)$ $I^G(J^{PC}) = 0^+(3^{++})$

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2048±8	213 ± 34	ANISOVICH	00J	SPEC	2.0 $p\overline{p} \rightarrow \eta\pi^0\pi^0$

NODE=M300J7
NODE=M300J7

$f_0(2060)$ $I^G(J^{PC}) = 0^+(0^{++})$

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
∼ 2050	∼ 120	[1] OAKDEN	94	RVUE	0.36–1.55 $\overline{p}p \rightarrow \pi\pi$
∼ 2060	∼ 50	[1] OAKDEN	94	RVUE	0.36–1.55 $\overline{p}p \rightarrow \pi\pi$

[1] See SEMENOV 99 and KLOET 96.

NODE=M300J59
NODE=M300J59
OCCUR=2
NODE=M300J;LINKAGE=A

$\pi(2070)$ $I^G(J^{PC}) = 1^-(0^{-+})$

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2070±35	310^{+100}_{-50}	ANISOVICH	01F	SPEC	2.0 $\overline{p}p \rightarrow 3\pi^0, \pi^0\eta, \pi^0\eta'$

NODE=M300J91
NODE=M300J91

$X(2075)$ $I^G(J^{PC}) = ?^?(1^{+?})$

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
$2084^{+4}_{-2}\pm9$	$58^{+4}_{-3} \pm 25$	[1,2] ABLIKIM	23BG	BES3	$e^+e^- \rightarrow pK^-\overline{\Lambda}$
2075±12±5	90 ± 35 ± 9	[3] ABLIKIM	04J	BES2	$J/\psi \rightarrow K^-p\overline{\Lambda}$

[1] The reported mass and width are the pole positions in the complex (M, Γ) plane.
[2] Signal observed with a statistical significance >20σ comes from 3883 candidate events. Spin parity determined to be $J^P = 1^+$ with a statistical significance >5σ over 0^-, 1^-, 2^+ hypotheses, and in the range within 3.1–7.5 σ with respect to 2^-.
[3] From a fit in the region $M_{p\overline{\Lambda}} - M_p - M_\Lambda < 150$ MeV. S-wave in the $p\overline{\Lambda}$ system preferred. A similar near-threshold enhancement in the $p\overline{\Lambda}$ system is observed in $B^+ \rightarrow p\overline{\Lambda}\overline{D}^0$ by CHEN 11F.

NODE=M300J01
NODE=M300J01
NODE=M300J01;LINKAGE=A
NODE=M300J01;LINKAGE=B
NODE=M300J01;LINKAGE=AB

$X(2080)$ $I^G(J^{PC}) = ?^?(?^{??})$

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2080±10	110 ± 20	KREYMER	80	STRC	13 $\pi^- d \rightarrow p\overline{p}n(n_s)$

NODE=M300J35
NODE=M300J35

$X(2080)$ $I^G(J^{PC}) = ?^?(3^{-?})$

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2080±10	190 ± 15	ROZANSKA	80	SPRK	18 $\pi^- p \rightarrow p\overline{p}n$

NODE=M300J37
NODE=M300J37

$a_1(2095)$ $I^G(J^{PC}) = 1^-(1^{++})$

MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
2096±17±121	451 ± 41 ± 81	69k	KUHN	04	B852	18 $\pi^- p \rightarrow \eta\pi^+\pi^-\pi^- p$

NODE=M300J04
NODE=M300J04

$B(a_1(2095) \rightarrow f_1(1285)\pi)$ / $B(a_1(2095) \rightarrow a_1(1260))$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
3.18±0.64	69k	KUHN	04	B852	18 $\pi^- p \rightarrow \eta\pi^+\pi^-\pi^- p$

NODE=M300B03
NODE=M300B03

$\eta(2100)$ $I^G(J^{PC}) = 0^+(0^{-+})$

MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
2050^{+30+75}_{-24-26}	$250^{+36+181}_{-30-164}$		[1] ABLIKIM	16N	BES3	$J/\psi \rightarrow \gamma K^+K^-K^+K^-$
2103±50	187 ± 75	586	[2] BISELLO	89B	DM2	$J/\psi \rightarrow 4\pi\gamma$

NODE=M300J48
NODE=M300J48

[1] From a partial wave analysis of $J/\psi \to \gamma\phi\phi$, for which the primary signal is $\eta(2225) \to \phi\phi$, and that also finds significant signals for for 0^{-+} phase space, $f_0(2100)$, $f_2(2010)$, $f_2(2300)$, $f_2(2340)$, and a previously unseen 0^{-+} state $X(2500)$ ($M = 2470^{+15}_{-19}{}^{+101}_{-23}$ MeV, $\Gamma = 230^{+64}_{-35}{}^{+56}_{-33}$ MeV). NODE=M300J48;LINKAGE=A

[2] ASTON 81B sees no peak, has 850 events in Ajinenko+Barth bins. ARESTOV 80 sees no peak. NODE=M300J;LINKAGE=A1

X(2100) $I^G(J^{PC}) = ?^?(0^{??})$ NODE=M300J49 NODE=M300J49

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2100±40	250 ± 40	ALDE	86D	GAM4	100 $\pi^- p \to 2\eta X$

X(2110) $I^G(J^{PC}) = 1^+(3^{-?})$ NODE=M300J36 NODE=M300J36

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2110±10	330 ± 20	EVANGELIS...	79	OMEG	10,16 $\pi^- p \to \bar{p} p n$

X(2120) $I^G(J^{PC}) = ?^?(0^{??})$ NODE=M300A07 NODE=M300A07

MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
$2122.4 \pm 6.7^{+4.7}_{-2.7}$	$83 \pm 16^{+31}_{-11}$	647	ABLIKIM	11C	BES3	$J/\psi \to \gamma\pi^+\pi^-\eta'$

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f_2(2140) $I^G(J^{PC}) = 0^+(2^{++})$ NODE=M300J50 NODE=M300J50

MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
2141±12	49 ± 28	389	GREEN	86	MPSF	400 $pA \to 4KX$

X(2150) $I^G(J^{PC}) = ?^?(2^{+?})$ NODE=M300J38 NODE=M300J38

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2150±10	260 ± 10	ROZANSKA	80	SPRK	18 $\pi^- p \to p\bar{p} n$

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a_2(2175) $I^G(J^{PC}) = 1^-(2^{++})$ NODE=M300J88 NODE=M300J88

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2175±40	310^{+90}_{-45}	ANISOVICH	01F	SPEC	2.0 $\bar{p}p \to 3\pi^0, \pi^0\eta, \pi^0\eta'$

η(2190) $I^G(J^{PC}) = 0^+(0^{-+})$ NODE=M300J13 NODE=M300J13

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN
2190±50	850 ± 100	BUGG	99	BES

ω_2(2195) $I^G(J^{PC}) = 0^-(2^{--})$ NODE=M300J82 NODE=M300J82

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2195±30	225 ± 40	[1] ANISOVICH	02B	SPEC	0.6–1.9 $p\bar{p} \to \omega\eta, \omega\pi^0\pi^0$

[1] From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B. NODE=M300J82;LINKAGE=AZ

X(2210) $I^G(J^{PC}) = ?^?(?^{??})$ NODE=M300J51 NODE=M300J51

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2210^{+79}_{-21}	203^{+437}_{-87}	EVANGELIS...	79B	OMEG	10 $\pi^- p \to K^+K^- n$
2207±22	130	CASO	70	HBC	11.2 $\pi^- p$

X_2(2210) $I^G(J^{PC}) = 0^+(2^{++})$ NODE=M300A05 NODE=M300A05

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2210±60	360 ± 120	[1] KLEMPT	22	RVUE	$J/\psi \to \gamma\pi^0\pi^0$, $\gamma K^0_S K^0_S$

[1] Fit of the tensor partial waves from BES3 in the multipole basis. Might be a cluster of $J^{PC} = 2^{++}$ resonances. The ratio of decay widths $KK^-/\pi\pi$ is 0.23 ± 0.05. NODE=M300A05;LINKAGE=A

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h_1(2215) $I^G(J^{PC}) = 0^-(1^{+-})$ NODE=M300J27 NODE=M300J27

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2215±40	325 ± 55	[1] ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta$, $\omega\pi^0\pi^0$

[1] From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B. NODE=M300J27;LINKAGE=AZ

ρ_2(2225) $I^G(J^{PC}) = 1^+(2^{--})$ NODE=M300J70 NODE=M300J70

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2225±35	335^{+100}_{-50}	[1] ANISOVICH	02	SPEC	0.6–1.9 $p\overline{p} \to \omega\pi^0$, $\omega\eta\pi^0$, $\pi^+\pi^-$

[1] From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02. NODE=M300J70;LINKAGE=AY

ρ_4(2230) $I^G(J^{PC}) = 1^+(4^{--})$ NODE=M300J74 NODE=M300J74

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2230±25	210 ± 30	[1] ANISOVICH	02	SPEC	0.6–1.9 $p\overline{p} \to \omega\pi^0$, $\omega\eta\pi^0$, $\pi^+\pi^-$

[1] From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02. NODE=M300J74;LINKAGE=AY

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b_1(2240) $I^G(J^{PC}) = 1^+(1^{+-})$ NODE=M300J87 NODE=M300J87

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2240±35	320 ± 85	[1] ANISOVICH	02	SPEC	0.6–1.9 $p\overline{p} \to \omega\pi^0$, $\omega\eta\pi^0$, $\pi^+\pi^-$

[1] From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02. NODE=M300J87;LINKAGE=AY

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f_2(2240) $I^G(J^{PC}) = 0^+(2^{++})$ NODE=M300K26 NODE=M300K26

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2240±15	241 ± 30	[1] ANISOVICH	00J	SPEC	1.92–2.41 $p\overline{p}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
∼ 2226	∼ 226	HASAN	94	RVUE	$p\overline{p} \to \pi\pi$

[1] From the combined analysis of ANISOVICH 99C, ANISOVICH 99F, ANISOVICH 99J, ANISOVICH 99K, and ANISOVICH 00B. See also ANISOVICH 12. NODE=M300K26;LINKAGE=AN

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b_3(2245) $I^G(J^{PC}) = 1^+(3^{+-})$ NODE=M300K10 NODE=M300K10

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN
2245±50	320 ± 70	[1] BUGG	04C	RVUE

[1] From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02. NODE=M300K10;LINKAGE=AY

η_2(2250) $I^G(J^{PC}) = 0^+(2^{-+})$ NODE=M300J17 NODE=M300J17

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN
2248±20	280 ± 20	ANISOVICH	00I	SPEC
2267±14	290 ± 50	ANISOVICH	00J	SPEC

π_4(2250) $I^G(J^{PC}) = 1^-(4^{-+})$ NODE=M300J73 NODE=M300J73

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2250±15	215 ± 25	ANISOVICH	01F	SPEC	2.0 $\overline{p}p \to 3\pi^0$, $\pi^0\eta$, $\pi^0\eta'$

ω_4(2250) $I^G(J^{PC}) = 0^-(4^{--})$ NODE=M300J84 NODE=M300J84

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2250±30	150 ± 50	[1] ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta$, $\omega\pi^0\pi^0$

[1] From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B. NODE=M300J84;LINKAGE=AZ

ω_5(2250) $I^G(J^{PC}) = 0^-(5^{--})$ NODE=M300K11 NODE=M300K11

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN
2250±70	320 ± 95	[1] BUGG	04	RVUE

[1] From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B. NODE=M300;LINKAGE=AZ

ω_3(2255) $I^G(J^{PC}) = 0^-(3^{--})$ NODE=M300J66 NODE=M300J66

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2255±15	175 ± 30	[1] ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta$, $\omega\pi^0\pi^0$

[1] From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B. NODE=M300J66;LINKAGE=AZ

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a_4(2255) $I^G(J^{PC}) = 1^-(4^{++})$ NODE=M300K21 NODE=M300K21

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2237± 5	291 ± 12	UMAN	06	E835	5.2 $\overline{p}p \to \eta\eta\pi^0$
2255±40	330^{+110}_{-50}	[1] ANISOVICH	01F	SPEC	1.96–2.41 $\overline{p}p$

[1] From the combined analysis of ANISOVICH 99C, ANISOVICH 99E, and ANISOVICH 01F. NODE=M300K21;LINKAGE=AN

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a_2(2255) $I^G(J^{PC}) = 1^-(2^{++})$ NODE=M300K22 NODE=M300K22

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2255±20	230 ± 15	[1] ANISOVICH	01G	SPEC	1.96–2.41 $\overline{p}p$

[1] From the combined analysis of ANISOVICH 99C, ANISOVICH 99E, ANISOVICH 01F, and ANISOVICH 01G. NODE=M300K22;LINKAGE=AN

X(2260) $I^G(J^{PC}) = 0^+(4^{+?})$ NODE=M300J40 NODE=M300J40

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2260±20	400 ± 100	EVANGELIS...	79	OMEG	10,16 $\pi^- p \to \overline{p}pn$

ρ(2270) $I^G(J^{PC}) = 1^+(1^{--})$ NODE=M300J86 NODE=M300J86

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2265±40	325 ± 80	[1] ANISOVICH	02	SPEC	0.6–1.9 $p\overline{p} \to \omega\pi^0$, $\omega\eta\pi^0$, $\pi^+\pi^-$
2280±50	440 ± 110	ATKINSON	85	OMEG	20–70 $\gamma p \to p\omega\pi^+\pi^-\pi^0$

[1] From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02. NODE=M300J86;LINKAGE=AY

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a_1(2270) $I^G(J^{PC}) = 1^-(1^{++})$ NODE=M300J72 NODE=M300J72

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2270^{+55}_{-40}	305^{+70}_{-40}	ANISOVICH	01F	SPEC	2.0 $\overline{p}p \to 3\pi^0$, $\pi^0\eta$, $\pi^0\eta'$

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h_3(2275) $I^G(J^{PC}) = 0^-(3^{+-})$ NODE=M300J28 NODE=M300J28

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2275±25	190 ± 45	[1] ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta$, $\omega\pi^0\pi^0$

[1] From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B. NODE=M300J28;LINKAGE=AZ

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a_3(2275) $I^G(J^{PC}) = 1^-(3^{++})$ NODE=M300K19 NODE=M300K19

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2275±35	350^{+100}_{-50}	[1] ANISOVICH	01G	SPEC	1.96–2.41 $\overline{p}p$

[1] From the combined analysis of ANISOVICH 99C, ANISOVICH 99E, ANISOVICH 01F, and ANISOVICH 01G. NODE=M300K19;LINKAGE=AN

π_2(2285) $I^G(J^{PC}) = 1^-(2^{-+})$ NODE=M300K25 NODE=M300K25

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2285±20±25	250 ± 20 ± 25	[1] ANISOVICH	11	SPEC	0.9–1.94 $p\overline{p}$

[1] Reanalysis of ADOMEIT 96 and ANISOVICH 00E. NODE=M300K25;LINKAGE=AN

$\omega_3(2285)$ $I^G(J^{PC}) = 0^-(3^{--})$ NODE=M300J83 NODE=M300J83

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2278±28	224 ± 50	[1] BUGG	04A	RVUE	
2285±60	230 ± 40	[2] ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta$, $\omega\pi^0\pi^0$

[1] Partial wave analysis of the data on $p\overline{p} \to \overline{\Lambda}\Lambda$ from BARNES 00. NODE=M300J83;LINKAGE=BU
[2] From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B. NODE=M300J83;LINKAGE=AZ

$\omega(2290)$ $I^G(J^{PC}) = 0^-(1^{--})$ NODE=M300J02 NODE=M300J02

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN
2290±20	275 ± 35	[1] BUGG	04A	RVUE

[1] Partial wave analysis of the data on $p\overline{p} \to \overline{\Lambda}\Lambda$ from BARNES 00. NODE=M300J02;LINKAGE=BU

$f_2(2295)$ $I^G(J^{PC}) = 0^+(2^{++})$ NODE=M300K27 NODE=M300K27

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2293±13	216 ± 37	[1] ANISOVICH	00J	SPEC	1.92–2.41 $p\overline{p}$

[1] From the combined analysis of ANISOVICH 99C, ANISOVICH 99F, ANISOVICH 99J, ANISOVICH 99K, and ANISOVICH 00B. See also ANISOVICH 12. NODE=M300K27;LINKAGE=AN

$f_3(2300)$ $I^G(J^{PC}) = 0^+(3^{++})$ NODE=M300J19 NODE=M300J19

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN
2334±25	200 ± 20	[1] BUGG	04A	RVUE

[1] Partial wave analysis of the data on $p\overline{p} \to \overline{\Lambda}\Lambda$ from BARNES 00. NODE=M300J19;LINKAGE=BU

$f_1(2310)$ $I^G(J^{PC}) = 0^+(1^{++})$ NODE=M300J23 NODE=M300J23

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN
2310±60	255 ± 70	ANISOVICH	00J	SPEC

$\eta(2320)$ $I^G(J^{PC}) = 0^+(0^{-+})$ NODE=M300J18 NODE=M300J18

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN
2320±15	230 ± 35	[1] ANISOVICH	00M	SPEC

[1] From the combined analysis of $\overline{p}p \to \eta\eta\eta$ from ANISOVICH 00M and $\overline{p}p \to \eta\pi^0\pi^0$ from ANISOVICH 00J. NODE=M300;LINKAGE=B

$\eta_4(2330)$ $I^G(J^{PC}) = 0^+(4^{-+})$ NODE=M300J22 NODE=M300J22

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2328±38	240 ± 90	ANISOVICH	00J	SPEC	2.0 $p\overline{p} \to \eta\pi^0\pi^0$

$\omega(2330)$ $I^G(J^{PC}) = 0^-(1^{--})$ NODE=M300J53 NODE=M300J53

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2330±30	435 ± 75	ATKINSON	88	OMEG	25–50 $\gamma p \to \rho^\pm\rho^0\pi^\mp$

$X(2340)$ $I^G(J^{PC}) = ?^?(?^{??})$ NODE=M300J54 NODE=M300J54

MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
2340±20	180 ± 60	126	[1] BALTAY	75	HBC	15 $\pi^+p \to p5\pi$

[1] Dominant decay into $\rho^0\rho^0\pi^+$. BALTAY 78 finds confirmation in $2\pi^+\pi^-2\pi^0$ events which contain $\rho^+\rho^0\pi^0$ and $2\rho^+\pi^-$. NODE=M300J;LINKAGE=B1

$\pi(2360)$ $I^G(J^{PC}) = 1^-(0^{-+})$ NODE=M300J90 NODE=M300J90

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2360±25	300^{+100}_{-50}	ANISOVICH	01F	SPEC	2.0 $\overline{p}p \to 3\pi^0$, $\pi^0\eta$, $\pi^0\eta'$

$X(2360)$ $I^G(J^{PC}) = ?^?(4^{+?})$ NODE=M300J42 NODE=M300J42

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2360 ± 10	430 ± 30	ROZANSKA	80	SPRK	$18\ \pi^- p \rightarrow p \bar{p} n$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$2356 \pm 7 \pm 15$	$304 \pm 28 \pm 54$	[1] ABLIKIM		23AY BES3	$e^+ e^- \rightarrow (\Lambda \bar{\Lambda}) \eta$

[1] Assuming $J^{PC} = 1^{--}$. NODE=M300J42;LINKAGE=A

$X(2440)$ $I^G(J^{PC}) = ?^?(5^{-?})$ NODE=M300J43 NODE=M300J43

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2440 ± 10	310 ± 20	ROZANSKA	80	SPRK	$18\ \pi^- p \rightarrow p \bar{p} n$

$a_6(2450)$ $I^G(J^{PC}) = 1^-(6^{++})$ NODE=M300K12 NODE=M300K12

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2450 ± 130	400 ± 250	CLELAND	82B	SPEC	$50\ \pi p \rightarrow K^0_S K^\pm p$

$X(2540)$ $I^G(J^{PC}) = 0^+(0^{++})$ NODE=M300K30 NODE=M300K30

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
$2539 \pm 14^{+38}_{-14}$	$274^{+77+126}_{-61-163}$	UEHARA	13	BELL	$\gamma\gamma \rightarrow K^0_S K^0_S$

$\Gamma(\gamma\gamma) \times B(K\overline{K})$ NODE=M300K3G NODE=M300K3G

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
40^{+9+17}_{-7-40}	UEHARA	13	BELL	$\gamma\gamma \rightarrow K^0_S K^0_S$

$X(2600)$ $I^G(J^{PC}) = ?^?(?^{??})$ NODE=M300A01 NODE=M300A01

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
$2618.3 \pm 2.0^{+16.3}_{-1.4}$	$195 \pm 5^{+26}_{-17}$	ABLIKIM	22G	BES3	$J/\psi \rightarrow \gamma \pi^+ \pi^- \eta'$

$B(J/\psi \rightarrow \gamma X(2600)) \times B(X(2600) \rightarrow f_0(1500)\eta') \times B(f_0(1500) \rightarrow \pi^+\pi^-)$ NODE=M300A02 NODE=M300A02

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$3.09 \pm 0.21^{+1.14}_{-0.77}$	[1] ABLIKIM	22G	BES3	$J/\psi \rightarrow \gamma \pi^+ \pi^- \eta'$

[1] The $\pi^+\pi^-$ mass spectrum is described by a coherent sum of two Breit-Wigner resonances, $f_0(1500)$ and a new $X(1540)$ with mass $1540.2 \pm 7.0^{+36.3}_{-6.1}$ MeV and width $157 \pm 19^{+11}_{-77}$ MeV. NODE=M300A02;LINKAGE=A

$B(J/\psi \rightarrow \gamma X(2600)) \times B(X(2600) \rightarrow X(1540)\eta') \times B(X(1540) \rightarrow \pi^+\pi^-)$ NODE=M300A03 NODE=M300A03

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
$2.69 \pm 0.19^{+0.38}_{-1.21}$	[1] ABLIKIM	22G	BES3	$J/\psi \rightarrow \gamma \pi^+ \pi^- \eta'$

[1] The $\pi^+\pi^-$ mass spectrum is described by a coherent sum of two Breit-Wigner resonances, $f_0(1500)$ and a new $X(1540)$ with mass $1540.2 \pm 7.0^{+36.3}_{-6.1}$ MeV and width $157 \pm 19^{+11}_{-77}$ MeV. NODE=M300A03;LINKAGE=A

$K^*_0(2600)$ $I(J^P) = 1/2(0^+)$ NODE=M300A09 NODE=M300A09

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
$2662 \pm 59 \pm 201$	$480 \pm 47 \pm 72$	[1] AAIJ	23AH	LHCB	$B^+ \rightarrow K^+ (K^0_S K \pi)$

[1] From Dalitz plot analyses of $\eta_c(1S, 2S) \rightarrow K^0_S K^+ \pi^- +$ c.c.. NODE=M300A09;LINKAGE=A

$X(2632)$ $I^G(J^{PC}) = ?^?(?^{??})$ NODE=M300J03 NODE=M300J03

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2635.2 ± 3.3		[1] EVDOKIMOV	04	SELX	$X(2632) \rightarrow D^+_s \eta$
2631.6 ± 2.1	< 17	[2] EVDOKIMOV	04	SELX	$X(2632) \rightarrow D^0 K^+$

OCCUR=2

[1] From a mass difference to D^+_s of 666.9 ± 3.3 MeV. NODE=M300J03;LINKAGE=EV

[2] From a mass difference to D^0 of 767.0 ± 2.0 MeV. NODE=M300J03;LINKAGE=ED

$B(X(2632) \to D^0 K^+)/B(X(2632) \to D_s^+ \eta)$

NODE=M300B01
NODE=M300B01

VALUE	DOCUMENT ID		TECN
0.14±0.06	[1] EVDOKIMOV	04	SELX

[1] Possible interpretation of this decay pattern is discussed by YASUI 07.

NODE=M300B01;LINKAGE=YA

X(2680) $I^G(J^{PC}) = ?^?(?^{??})$

NODE=M300J55
NODE=M300J55

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2676±27	150	CASO	70	HBC	11.2 $\pi^- p \to \rho^- \pi^+ \pi^- p$

X(2710) $I^G(J^{PC}) = ?^?(6^{+?})$

NODE=M300J44
NODE=M300J44

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2710±20	170 ± 40	ROZANSKA	80	SPRK	18 $\pi^- p \to p \overline{p} n$

X(2750) $I^G(J^{PC}) = ?^?(7^{-?})$

NODE=M300J56
NODE=M300J56

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2747±32	195 ± 75	DENNEY	83	LASS	10 $\pi^+ p \to K^+ K^- \pi^+ p$

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f_6(3100) $I^G(J^{PC}) = 0^+(6^{++})$

NODE=M300J06
NODE=M300J06

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
3100±100	700 ± 130	BINON	05	GAMS	33 $\pi^- p \to \eta \eta n$

X(3250) $I^G(J^{PC}) = ?^?(?^{??})$ 3-Body Decays

NODE=M300J57
NODE=M300J57

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
3250±8±20	45 ± 18	ALEEV	93	BIS2	$X(3250) \to \Lambda \overline{p} K^+$
3265±7±20	40 ± 18	ALEEV	93	BIS2	$X(3250) \to \overline{\Lambda} p K^-$

OCCUR=2

X(3250) $I^G(J^{PC}) = ?^?(?^{??})$ 4-Body Decays

NODE=M300J58
NODE=M300J58

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
3245±8±20	25 ± 11	ALEEV	93	BIS2	$X(3250) \to \Lambda \overline{p} K^+ \pi^\pm$
3250±9±20	50 ± 20	ALEEV	93	BIS2	$X(3250) \to \overline{\Lambda} p K^- \pi^\mp$
3270±8±20	25 ± 11	ALEEV	93	BIS2	$X(3250) \to K^0_S p \overline{p} K^\pm$

OCCUR=2
OCCUR=3

X(3350) $I^G(J^{PC}) = ?^?(?^{??})$

NODE=M300J09
NODE=M300J09

MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
3350^{+10}_{-20}±20	70^{+40}_{-30} ± 40	50 ± 10	[1] GABYSHEV	06A	BELL	$B^- \to \Lambda_c^+ \overline{p} \pi^-$

[1] A similar enhancement in the $\Lambda_c^+ \overline{p}$ final state is also reported by BABAR collaboration in AUBERT 10H.

NODE=M300J09;LINKAGE=AU

ψ(4500) $I^G(J^{PC}) = 0^-(1^{--})$

NODE=M300K39
NODE=M300K39

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
4469.1±26.2± 3.6	246.3 ± 36.7 ± 9.4	[1] ABLIKIM	23X	BES3	$e^+ e^- \to D^{*0} D^{*-} \pi^+$
4484.7±13.3±24.1	111.1 ± 30 ± 15.2	[2] ABLIKIM	22AU	BES3	$e^+ e^- \to K^+ K^- J/\psi$

[1] From a cross-section measurement of $e^+ e^- \to D^{*0} D^{*-} \pi^+$ between 4.189 and 4.951 GeV, assuming a coherent sum of 3 Breit-Wigner resonances plus a continuum amplitude. $\Gamma(e^+ e^-) \cdot B(D^{*0} D^{*-} \pi^+) = 107$–$1744$ eV depending on solutions I – VIII with the same fit qualities. The two other resonances have masses (widths) 4209.6 ± 7.5 (81.6 ± 19.9) MeV and 4675.3 ± 29.7 (218.3 ± 73.5) MeV.

NODE=M300K39;LINKAGE=A

[2] ABLIKIM 22AU cross sections analysis of the process $e^+ e^- \to K^+ K^- J/\psi$ at c.m. energies 4.127–4.600 GeV from 15.6 fb^{-1} of data.

NODE=M300K39;LINKAGE=B

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ABLIKIM	23AY	PR D107 112001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62066
ABLIKIM	23BG	PRL 131 151901	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62431
ABLIKIM	23X	PRL 130 121901	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62072
ABLIKIM	22AU	CP C46 111002	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61896
ABLIKIM	22G	PRL 129 042001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61642
KLEMPT	22	PL B830 137171	E. Klempt *et al.*	(BONN)	REFID=61646
ABLIKIM	16N	PR D93 112011	M. Ablikim	(BESIII Collab.)	REFID=57512
UEHARA	13	PTEP 2013 123C01	S. Uehara *et al.*	(BELLE Collab.)	REFID=55592
ANISOVICH	12	PR D85 014001	A.V. Anisovich *et al.*		REFID=53961
ABLIKIM	11C	PRL 106 072002	M. Ablikim *et al.*	(BESIII Collab.)	REFID=53684
ANASHIN	11	PL B703 543	V.V. Anashin *et al.*	(KEDR Collab.)	REFID=53932
ANISOVICH	11	EPJ C71 1511	A.V. Anisovich *et al.*	(LOQM, RAL, PNPI)	REFID=53631
CHEN	11F	PR D84 071501	P. Chen *et al.*	(BELLE Collab.)	REFID=53814
AUBERT	10H	PR D82 031102	B. Aubert *et al.*	(BABAR Collab.)	REFID=53363
ABRAAMYAN	09	PR C80 034001	Kh.U. Abraamyan *et al.*		REFID=53100
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VLADIMIRSK...	07	PAN 70 1706	V. Vladimirsky *et al.*		REFID=52058
		Translated from YAF 70 1751.			
YASUI	07	PR D76 034009	S. Yasui, M. Oka		REFID=51907
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UMAN	06	PR D73 052009	I. Uman *et al.*	(FNAL E835)	REFID=51063
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		Translated from YAF 68 998.			
GRIGOR'EV	05	PAN 68 1271	V.K. Grigor'ev *et al.*	(ITEP)	REFID=50844
		Translated from YAF 68 1324.			
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BUGG	04	PL B595 556 (errat.)	D.V. Bugg		REFID=49763
BUGG	04A	EPJ C36 161	D.V. Bugg		REFID=50158
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		Translated from YAF 66 729.			
ANISOVICH	02	PL B542 8	A.V. Anisovich *et al.*		REFID=48828
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CHUNG	02	PR D65 072001	S.U. Chung *et al.*	(BNL E852 Collab.)	REFID=48837
ANISOVICH	01C	PL B507 23	A.V. Anisovich *et al.*		REFID=48325
ANISOVICH	01D	PL B508 6	A.V. Anisovich *et al.*		REFID=48327
ANISOVICH	01E	PL B513 281	A.V. Anisovich *et al.*		REFID=48349
ANISOVICH	01F	PL B517 261	A.V. Anisovich *et al.*		REFID=48352
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ANISOVICH	00E	PL B477 19	A.V. Anisovich *et al.*		REFID=47945
ANISOVICH	00I	PL B491 40	A.V. Anisovich *et al.*		REFID=47949
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		Translated from ZETFP 72 698.			
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ANISOVICH	99F	NP A651 253	A.V. Anisovich *et al.*		REFID=46926
ANISOVICH	99J	PL B471 271	A.V. Anisovich *et al.*		REFID=47416
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ALBRECHT	91F	ZPHY C50 1	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=41658
CONDO	91	PR D43 2787	G.T. Condo *et al.*	(SLAC Hybrid Collab.)	REFID=41588
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ASTON	81B	NP B189 205	D. Aston *et al.*	(BONN, CERN, EPOL, GLAS+)	REFID=11553
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