

Further States

OMITTED FROM SUMMARY TABLE

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

QUANTUM NUMBERS, MASSES, WIDTHS, AND BRANCHING RATIOS

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$360 \pm 7 \pm 9$	64 ± 18	2.3k	¹ ABRAAMYAN 09	CNTR	$2.75 d C \rightarrow \gamma \gamma X$

¹ Not seen in $p C \rightarrow \gamma \gamma X$ at 5.5 GeV/c.

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>COMMENT</u>
1072 ± 1	3.5 ± 0.5	² VLADIMIRSK...08	$40 \pi^- p \rightarrow K_S^0 K_S^0 n + m \pi^0$

² Supersedes GRIGOR'EV 05.

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

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

f₀(1200–1600) $I^G(J^{PC}) = 0^+(0^{++})$

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1323 ± 8	237 ± 20	VLADIMIRSK...06	SPEC	$40 \pi^- p \rightarrow K_S^0 K_S^0 n$
1480^{+100}_{-150}	1030^{+80}_{-170}	³ ANISOVICH 03	SPEC	
1530^{+90}_{-250}	560 ± 40	⁴ ANISOVICH 03	SPEC	

³ K-matrix pole from combined analysis of $\pi^- p \rightarrow \pi^0 \pi^0 n$, $\pi^- p \rightarrow K \bar{K} n$, $\pi^+ \pi^- \rightarrow \pi^+ \pi^-$, $\bar{p} p \rightarrow \pi^0 \pi^0 \pi^0$, $\pi^0 \eta \eta$, $\pi^0 \pi^0 \eta$, $\pi^+ \pi^- \pi^0$, $K^+ K^- \pi^0$, $K_S^0 K_S^0 \pi^0$, $K^+ K_S^0 \pi^-$ at rest, $\bar{p} n \rightarrow \pi^- \pi^- \pi^+$, $K_S^0 K^- \pi^0$, $K_S^0 K_S^0 \pi^-$ at rest.

⁴ K-matrix pole from combined analysis of $\pi^- p \rightarrow \pi^0 \pi^0 n$, $\pi^- p \rightarrow K \bar{K} n$, $\bar{p} p \rightarrow \pi^0 \pi^0 \pi^0$, $\pi^0 \eta \eta$, $\pi^0 \pi^0 \eta$ at rest.

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

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

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>COMMENT</u>
1545 ± 3	6.0 ± 2.5	⁵ VLADIMIRSK...08	$40 \pi^- p \rightarrow K_S^0 K_S^0 n + m \pi^0$

⁵Supersedes VLADIMIRSKII 00.

X(1575)		$I^G(J^{PC}) = ??(1^{--})$				
MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT		
1576^{+49+98}_{-55-91}	$818^{+22+64}_{-23-133}$	⁶ ABLIKIM	06S BES	$J/\psi \rightarrow K^+ K^- \pi^0$		

⁶ A broad peak observed at $K^+ K^-$ invariant mass. Mass and width above are its pole position. The observed branching ratio is $B(J/\psi \rightarrow X \pi^0) B(X \rightarrow K^+ K^-) = (8.5 \pm 0.6^{+2.7}_{-3.6}) \times 10^{-4}$.

X(1600)		$I^G(J^{PC}) = 2^+(2^{++})$				
MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT		
1600 ± 100	400 ± 200	⁷ ALBRECHT	91F ARG	$10.2 e^+ e^- \rightarrow e^+ e^- 2(\pi^+ \pi^-)$		

⁷ Our estimate.

X(1650)		$I^G(J^{PC}) = 0^-(??^-)$				
MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT	
1652 ± 7	<50	100	PROKOSHKIN 96	GAM2	$32,38 \pi p \rightarrow \omega \eta n$	

X(1730)		$I^G(J^{PC}) = ??(??^+)$				
MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT	
$1731.0 \pm 1.2 \pm 2.0$	$3.2 \pm 0.8 \pm 1.3$	58	VLADIMIRSK...07	SPEC	$40 \pi^- p \rightarrow K_S^0 K_S^0 X$	

X(1750)		$I^G(J^{PC}) = ??(1^{--})$				
MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT		
$1753.5 \pm 1.5 \pm 2.3$	$122.2 \pm 6.2 \pm 8.0$	LINK	02K FOCS	$20-160 \gamma p \rightarrow K^+ K^- p$		

$B(X(1750) \rightarrow \bar{K}^*(892)^0 K^0 \rightarrow K^\pm \pi^\mp K_S^0) / B(X(1750) \rightarrow K^+ K^-)$

VALUE	CL%	DOCUMENT ID	TECN
<0.065	90	LINK	02K FOCS

$B(X(1750) \rightarrow \bar{K}^*(892)^\pm K^\mp \rightarrow K^\pm \pi^\mp K_S^0) / B(X(1750) \rightarrow K^+ K^-)$

VALUE	CL%	DOCUMENT ID	TECN
<0.183	90	LINK	02K FOCS

f₂(1750)		$I^G(J^{PC}) = 0^+(2^{++})$				
MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT	
1755 ± 10	67 ± 12	870	⁸ SCHEGELSKY 06A	RVUE	$\gamma\gamma \rightarrow K_S^0 K_S^0$	

$\Gamma(K\bar{K})$

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
17 ± 5	870	⁹ SCHEGELSKY 06A	RVUE	$\gamma\gamma \rightarrow K_S^0 K_S^0$

$\Gamma(\gamma\gamma)$

<u>VALUE (keV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.13±0.04	870	⁹ SCHEGELSKY 06A	RVUE	$\gamma\gamma \rightarrow K_S^0 K_S^0$

$\Gamma(\pi\pi)$

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1.3±1.0	870	⁹ SCHEGELSKY 06A	RVUE	$\gamma\gamma \rightarrow K_S^0 K_S^0$

$\Gamma(\eta\eta)$

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2.0±0.5	870	⁹ SCHEGELSKY 06A	RVUE	$\gamma\gamma \rightarrow K_S^0 K_S^0$

⁸ From analysis of L3 data at 91 and 183–209 GeV.

⁹ From analysis of L3 data at 91 and 183–209 GeV and using SU(3) relations.

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1763±20	192 ± 60	CONDO 91	SHF	$\gamma p \rightarrow (p\pi^+)(\pi^+\pi^-\pi^-)$
1787±18	118 ± 60	CONDO 91	SHF	$\gamma p \rightarrow n\pi^+\pi^+\pi^-$

$f_0(1800)$ $I^G(J^{PC}) = 0^+(0^{++})$

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1795 ± 7 ⁺²³ ₋₂₀	95 ± 10 ⁺⁷⁸ ₋₈₂	ABLIKIM	13J BES3	$J/\psi \rightarrow \gamma\omega\phi$
1812 ⁺¹⁹ ₋₂₆ ± 18	105 ± 20 ± 28	¹⁰ ABLIKIM	06J BES2	$J/\psi \rightarrow \gamma\omega\phi$

¹⁰ Not seen by LIU 09 in $B^\pm \rightarrow K^\pm\omega\phi$.

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

<u>$\Gamma(e^+e^-) \cdot B(X \rightarrow \text{hadrons})$ (eV)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<120	90	¹¹ ANASHIN	11 KEDR	$e^+e^- \rightarrow \text{hadrons}$

¹¹ This limit is center-of-mass energy dependent. We quote the most stringent one.

X(1855) $I^G(J^{PC}) = ?^?(2^{??})$

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1856.6±5	20 ± 5	BRIDGES	86D SPEC	0. $\bar{p}d \rightarrow \pi\pi N$

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1870±40	250 ± 30	ALDE	86D GAM4	100 $\pi^-\rho \rightarrow 2\eta X$

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1874±43±96	385 ± 121 ± 114	CHUNG	02 B852	18.3 $\pi^-\rho \rightarrow \pi^+\pi^-\pi^-\rho$

$B(a_3(1875) \rightarrow f_2(1270)\pi)/B(a_3(1875) \rightarrow \rho\pi)$

VALUE	DOCUMENT ID	TECN	COMMENT
0.8 ± 0.2	¹² CHUNG	02	B852 $18.3 \pi^- p \rightarrow \pi^+ \pi^- \pi^- p$

¹² Using the observable fractions of 50.0% $\rho\pi$, 56.5% $f_2\pi$, and 11.8% $\rho_3\pi$.

$B(a_3(1875) \rightarrow \rho_3(1690)\pi)/B(a_3(1875) \rightarrow \rho\pi)$

VALUE	DOCUMENT ID	TECN	COMMENT
0.9 ± 0.3	¹³ CHUNG	02	B852 $18.3 \pi^- p \rightarrow \pi^+ \pi^- \pi^- p$

¹³ Using the observable fractions of 50.0% $\rho\pi$, 56.5% $f_2\pi$, and 11.8% $\rho_3\pi$.

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

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

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

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

$\rho_2(1940) \quad I^G(J^{PC}) = 1^+(2^{--})$

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
1940 ± 40	155 ± 40	¹⁴ ANISOVICH	02	SPEC $0.6-1.9 p\bar{p} \rightarrow \omega\pi^0, \omega\eta\pi^0, \pi^+\pi^-$

¹⁴ From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02.

$\omega_3(1945) \quad I^G(J^{PC}) = 0^-(3^{--})$

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
1945 ± 20	115 ± 22	¹⁵ ANISOVICH	02B	SPEC $0.6-1.9 p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$

¹⁵ From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
1950^{+30}_{-70}	180^{+30}_{-70}	¹⁶ ANISOVICH	01F	SPEC $1.96-2.41 \bar{p}p$

¹⁶ From the combined analysis of ANISOVICH 99C, ANISOVICH 99E, and ANISOVICH 01F.

$\omega(1960) \quad I^G(J^{PC}) = 0^-(1^{--})$

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
1960 ± 25	195 ± 60	¹⁷ ANISOVICH	02B	SPEC $0.6-1.9 p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$

¹⁷ From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.

$b_1(1960)$		$I^G(J^{PC}) = 1^+(1^+ -)$			
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
1960 ± 35	230 ± 50	¹⁸ ANISOVICH	02 SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\pi^0, \omega\eta\pi^0, \pi^+\pi^-$	

¹⁸ From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02.

$h_1(1965)$		$I^G(J^{PC}) = 0^-(1^+ -)$			
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
1965 ± 45	345 ± 75	¹⁹ ANISOVICH	02B SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$	

¹⁹ From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.

$f_1(1970)$		$I^G(J^{PC}) = 0^+(1^+ +)$			
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
1971 ± 15	240 ± 45	ANISOVICH	00J SPEC		

$X(1970)$		$I^G(J^{PC}) = ??(???)$			
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
1970 ± 10	40 ± 20	CHLIAPNIK...	80 HBC	32 $K^+p \rightarrow 2K_S^0 2\pi X$	

$X(1975)$		$I^G(J^{PC}) = ??(???)$			
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1973 ± 15	80	30	CASO	70 HBC	11.2 $\pi^- p \rightarrow \rho 2\pi$

$\omega_2(1975)$		$I^G(J^{PC}) = 0^-(2^- -)$			
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
1975 ± 20	175 ± 25	²⁰ ANISOVICH	02B SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$	

²⁰ From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.

$a_2(1990)$		$I^G(J^{PC}) = 1^-(2^+ +)$			
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2050 ± 10 ± 40	190 ± 22 ± 100	18k	²¹ SCHEGELSKY	06 RVUE	$\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$
2003 ± 10 ± 19	249 ± 23 ± 32		LU	05 B852	18 $\pi^- p \rightarrow \omega\pi^-\pi^0 p$

²¹ From analysis of L3 data at 183–209 GeV.

$\Gamma(\gamma\gamma) \Gamma(\pi^+\pi^-\pi^0) / \Gamma(\text{total})$

<u>VALUE (keV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.11±0.04±0.05	18k	²² SCHEGELSKY 06	RVUE	$\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$

²² From analysis of L3 data at 183–209 GeV.

$\rho(2000)$ $I^G(J^{PC}) = 1^+(1^{--})$

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2000±30	260 ± 45	²³ BUGG	04C	RVUE Compilation
~ 1988	~ 244	HASAN	94	RVUE $\bar{p}p \rightarrow \pi\pi$

²³ From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02.

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2001±10	312 ± 32	ANISOVICH	00J	SPEC
~ 1996	~ 134	HASAN	94	RVUE $\bar{p}p \rightarrow \pi\pi$

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
1964±35	225 ± 50	²⁴ ARMSTRONG 93D	E760		$\bar{p}p \rightarrow 3\pi^0 \rightarrow 6\gamma$
~ 2100	~ 500	²⁴ ANTIPOV	77	CIBS	– 25 $\pi^-p \rightarrow \rho\pi^-\rho_3$
2214±15	355 ± 21	²⁵ BALTAY	77	HBC	0 15 $\pi^-p \rightarrow \Delta^{++}3\pi$
2080±40	340 ± 80	KALELKAR	75	HBC	+ 15 $\pi^+p \rightarrow \rho\pi^+\rho_3$

²⁴ Cannot determine spin to be 3.

²⁵ BALTAY 77 favors $J^P = ,3^+$.

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1998±3±5	<15	VLADIMIRSK...03	SPEC	$\pi^-p \rightarrow K_S^0 K_S^0 M M$

$\pi_2(2005)$ $I^G(J^{PC}) = 1^-(2^{-+})$

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1974±14±83	341 ± 61 ± 139	145k	LU	05	B852 18 $\pi^-p \rightarrow \omega\pi^-\pi^0\rho$
2005±15	200 ± 40		ANISOVICH	01F	SPEC 2.0 $\bar{p}p \rightarrow 3\pi^0, \pi^0\eta, \pi^0\eta'$

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>
2010 ⁺³⁵ ₋₆₀	270 ± 60	ANISOVICH	00J SPEC

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

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

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

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

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2015±3	10 ± 4	FERRER	99	RVUE $\pi p \rightarrow p p \bar{p} \pi(\pi)$

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2025±20	145 ± 30	²⁶ ANISOVICH	02B SPEC	0.6–1.9 $p \bar{p} \rightarrow \omega \eta, \omega \pi^0 \pi^0$

²⁶ From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2032±12	117 ± 11	²⁷ ANISOVICH	02 SPEC	0.6–1.9 $p \bar{p} \rightarrow \omega \pi^0, \omega \eta \pi^0, \pi^+ \pi^-$

²⁷ From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02.

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2030±20	205 ± 30	²⁸ ANISOVICH	01F SPEC	1.96–2.41 $\bar{p} p$

²⁸ From the combined analysis of ANISOVICH 99C, ANISOVICH 99E, and ANISOVICH 01F.

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2031±12	150 ± 18	²⁹ ANISOVICH	01F SPEC	1.96–2.41 $\bar{p} p$

²⁹ From the combined analysis of ANISOVICH 99C, ANISOVICH 99E, and ANISOVICH 01F.

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

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

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

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.05 ± 0.03	³⁰ ANISOVICH	11	SPEC 0.9–1.94 $p\bar{p}$

³⁰ Reanalysis of ADOMEIT 96 and ANISOVICH 00E.

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

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.10 ± 0.08	³¹ ANISOVICH	11	SPEC 0.9–1.94 $p\bar{p}$

³¹ Reanalysis of ADOMEIT 96 and ANISOVICH 00E.

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

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.13 ± 0.06	³² ANISOVICH	11	SPEC 0.9–1.94 $p\bar{p}$

³² Reanalysis of ADOMEIT 96 and ANISOVICH 00E.

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

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

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
~ 2050	~ 120	³³ OAKDEN	94	RVUE $0.36\text{--}1.55 p\bar{p} \rightarrow \pi\pi$
~ 2060	~ 50	³³ OAKDEN	94	RVUE $0.36\text{--}1.55 p\bar{p} \rightarrow \pi\pi$

³³ See SEMENOV 99 and KLOET 96.

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

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

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$2075 \pm 12 \pm 5$	$90 \pm 35 \pm 9$	³⁴ ABLIKIM	04J	BES2 $J/\psi \rightarrow K^- p\bar{\Lambda}$

³⁴ From a fit in the region $M_{p\bar{\Lambda}} - M_p - M_{\Lambda} < 150$ MeV. S-wave in the $p\bar{\Lambda}$ system preferred.

A similar near-threshold enhancement in the $p\bar{\Lambda}$ system is observed in $B^+ \rightarrow p\bar{\Lambda}\bar{D}^0$ by CHEN 11F.

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2080 ± 10	110 ± 20	KREYMER	80	STRC $13 \pi^- d \rightarrow p\bar{p}n(n_S)$

X(2080) $I^G(J^{PC}) = ??(3^{-?})$		<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>			
2080 ± 10	190 ± 15	ROZANSKA 80	SPRK	18 $\pi^- p \rightarrow p\bar{p}n$

a₁(2095) $I^G(J^{PC}) = 1^-(1^{++})$		<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>				
2096 ± 17 ± 121	451 ± 41 ± 81	69k	KUHN 04	B852	18 $\pi^- p \rightarrow \eta\pi^+\pi^-\pi^-p$

B(a₁(2095) → f₁(1285)π) / B(a₁(2095) → a₁(1260))		<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<u>VALUE</u>	<u>EVTS</u>			
3.18 ± 0.64	69k	KUHN 04	B852	18 $\pi^- p \rightarrow \eta\pi^+\pi^-\pi^-p$

η(2100) $I^G(J^{PC}) = 0^+(0^{-+})$		<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>EVTS</u>		
2103 ± 50	187 ± 75	586	³⁵ BISELLO 89B	DM2 $J/\psi \rightarrow 4\pi\gamma$

³⁵ ASTON 81B sees no peak, has 850 events in Ajinenko+Barth bins. ARESTOV 80 sees no peak.

X(2100) $I^G(J^{PC}) = ??(0^{??})$		<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>			
2100 ± 40	250 ± 40	ALDE	86D	GAM4 100 $\pi^- p \rightarrow 2\eta X$

X(2110) $I^G(J^{PC}) = 1^+(3^{-?})$		<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>			
2110 ± 10	330 ± 20	EVANGELIS...	79	OMEG 10,16 $\pi^- p \rightarrow \bar{p}pn$

f₂(2140) $I^G(J^{PC}) = 0^+(2^{++})$		<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>EVTS</u>		
2141 ± 12	49 ± 28	389	GREEN 86	MPSF 400 $pA \rightarrow 4KX$

X(2150) $I^G(J^{PC}) = ??(2^{+?})$		<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>			
2150 ± 10	260 ± 10	ROZANSKA 80	SPRK	18 $\pi^- p \rightarrow p\bar{p}n$

a₂(2175) $I^G(J^{PC}) = 1^-(2^{++})$		<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>			
2175 ± 40	310 ⁺⁹⁰ ₋₄₅	ANISOVICH 01F	SPEC	2.0 $\bar{p}p \rightarrow 3\pi^0, \pi^0\eta, \pi^0\eta'$

$\eta(2190)$		$I^G(J^{PC}) = 0^+(0^{-+})$		
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2190 ± 50	850 ± 100	BUGG	99	BES

$\omega_2(2195)$		$I^G(J^{PC}) = 0^-(2^{--})$		
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2195 ± 30	225 ± 40	³⁶ ANISOVICH	02B	SPEC 0.6–1.9 $p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$
³⁶ From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.				

$\omega(2205)$		$I^G(J^{PC}) = 0^-(1^{--})$		
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2205 ± 30	350 ± 90	³⁷ ANISOVICH	02B	SPEC 0.6–1.9 $p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$
³⁷ From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.				

$X(2210)$		$I^G(J^{PC}) = ??(???)$		
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2210 ⁺⁷⁹ ₋₂₁	203 ⁺⁴³⁷ ₋₈₇	EVANGELIS...	79B	OMEG 10 $\pi^- p \rightarrow K^+ K^- n$

$X(2210)$		$I^G(J^{PC}) = ??(???)$		
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2207 ± 22	130	CASO	70	HBC 11.2 $\pi^- p$

$h_1(2215)$		$I^G(J^{PC}) = 0^-(1^{+-})$		
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2215 ± 40	325 ± 55	³⁸ ANISOVICH	02B	SPEC 0.6–1.9 $p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$
³⁸ From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.				

$\rho_2(2225)$		$I^G(J^{PC}) = 1^+(2^{--})$		
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2225 ± 35	335 ⁺¹⁰⁰ ₋₅₀	³⁹ ANISOVICH	02	SPEC 0.6–1.9 $p\bar{p} \rightarrow \omega\pi^0, \omega\eta\pi^0, \pi^+\pi^-$
³⁹ From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02.				

$\rho_4(2230)$		$I^G(J^{PC}) = 1^+(4^{--})$		
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2230 ± 25	210 ± 30	⁴⁰ ANISOVICH	02	SPEC 0.6–1.9 $p\bar{p} \rightarrow \omega\pi^0, \omega\eta\pi^0, \pi^+\pi^-$

⁴⁰From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02.

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2240 ± 35	320 ± 85	⁴¹ ANISOVICH	02	SPEC 0.6–1.9 $p\bar{p} \rightarrow \omega\pi^0, \omega\eta\pi^0, \pi^+\pi^-$

⁴¹From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02.

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2240 ± 15	241 ± 30	⁴² ANISOVICH	00J	SPEC 1.92–2.41 $p\bar{p}$

• • • We do not use the following data for averages, fits, limits, etc. • • •

~ 2226 ~ 226 HASAN 94 RVUE $p\bar{p} \rightarrow \pi\pi$

⁴²From the combined analysis of ANISOVICH 99C, ANISOVICH 99F, ANISOVICH 99J, ANISOVICH 99K, and ANISOVICH 00B. See also ANISOVICH 12.

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>
2245 ± 50	320 ± 70	⁴³ BUGG	04C RVUE

⁴³From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02.

$\eta_2(2250)$ $I^G(J^{PC}) = 0^+(2^{-+})$

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

$\pi_4(2250)$ $I^G(J^{PC}) = 1^-(4^{-+})$

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2250 ± 15	215 ± 25	ANISOVICH	01F	SPEC 2.0 $\bar{p}p \rightarrow 3\pi^0, \pi^0\eta, \pi^0\eta'$

$\omega_4(2250)$ $I^G(J^{PC}) = 0^-(4^{--})$

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2250 ± 30	150 ± 50	⁴⁴ ANISOVICH	02B	SPEC 0.6–1.9 $p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$

⁴⁴From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.

$\omega_5(2250)$ $I^G(J^{PC}) = 0^-(5^{--})$

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>
2250 ± 70	320 ± 95	⁴⁵ BUGG	04 RVUE

⁴⁵ From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.

$\omega_3(2255)$ $I^G(J^{PC}) = 0^-(3^{--})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2255 ± 15	175 ± 30	⁴⁶ ANISOVICH	02B	SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$

⁴⁶ From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.

$a_4(2255)$ $I^G(J^{PC}) = 1^-(4^{++})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2237 ± 5	291 ± 12	UMAN	06	E835	5.2 $\bar{p}p \rightarrow \eta\eta\pi^0$
2255 ± 40	330 ⁺¹¹⁰ ₋₅₀	⁴⁷ ANISOVICH	01F	SPEC	1.96–2.41 $\bar{p}p$

⁴⁷ From the combined analysis of ANISOVICH 99C, ANISOVICH 99E, and ANISOVICH 01F.

$a_2(2255)$ $I^G(J^{PC}) = 1^-(2^{++})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2255 ± 20	230 ± 15	⁴⁸ ANISOVICH	01G	SPEC	1.96–2.41 $\bar{p}p$

⁴⁸ From the combined analysis of ANISOVICH 99C, ANISOVICH 99E, ANISOVICH 01F, and ANISOVICH 01G.

$X(2260)$ $I^G(J^{PC}) = 0^+(4^{+?})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2260 ± 20	400 ± 100	EVANGELIS...	79	OMEG	10,16 $\pi^- p \rightarrow \bar{p}pn$

$\rho(2270)$ $I^G(J^{PC}) = 1^+(1^{--})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2265 ± 40	325 ± 80	⁴⁹ ANISOVICH	02	SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\pi^0, \omega\eta\pi^0, \pi^+\pi^-$
2280 ± 50	440 ± 110	ATKINSON	85	OMEG	20–70 $\gamma p \rightarrow p\omega\pi^+\pi^-\pi^0$

⁴⁹ From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02.

$a_1(2270)$ $I^G(J^{PC}) = 1^-(1^{++})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2270 ⁺⁵⁵ ₋₄₀	305 ⁺⁷⁰ ₋₄₀	ANISOVICH	01F	SPEC	2.0 $\bar{p}p \rightarrow 3\pi^0, \pi^0\eta, \pi^0\eta'$

$h_3(2275)$ $I^G(J^{PC}) = 0^-(3^{+-})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2275 ± 25	190 ± 45	⁵⁰ ANISOVICH	02B	SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$

⁵⁰ From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.

$a_3(2275)$ $I^G(J^{PC}) = 1^-(3^{++})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2275 ± 35	350 $^{+100}_{-50}$	⁵¹ ANISOVICH	01G	SPEC	1.96–2.41 $\bar{p}p$

⁵¹ From the combined analysis of ANISOVICH 99C, ANISOVICH 99E, ANISOVICH 01F, and ANISOVICH 01G.

$\pi_2(2285)$ $I^G(J^{PC}) = 1^-(2^{-+})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2285 ± 20 ± 25	250 ± 20 ± 25	⁵² ANISOVICH	11	SPEC	0.9–1.94 $p\bar{p}$

⁵² Reanalysis of ADOMEIT 96 and ANISOVICH 00E.

$\omega_3(2285)$ $I^G(J^{PC}) = 0^-(3^{--})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2278 ± 28	224 ± 50	⁵³ BUGG	04A	RVUE	
2285 ± 60	230 ± 40	⁵⁴ ANISOVICH	02B	SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$

⁵³ Partial wave analysis of the data on $p\bar{p} \rightarrow \bar{\Lambda}\Lambda$ from BARNES 00.

⁵⁴ From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.

$\omega(2290)$ $I^G(J^{PC}) = 0^-(1^{--})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2290 ± 20	275 ± 35	⁵⁵ BUGG	04A	RVUE	

⁵⁵ Partial wave analysis of the data on $p\bar{p} \rightarrow \bar{\Lambda}\Lambda$ from BARNES 00.

$f_2(2295)$ $I^G(J^{PC}) = 0^+(2^{++})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2293 ± 13	216 ± 37	⁵⁶ ANISOVICH	00J	SPEC	1.92–2.41 $p\bar{p}$

⁵⁶ From the combined analysis of ANISOVICH 99C, ANISOVICH 99F, ANISOVICH 99J, ANISOVICH 99K, and ANISOVICH 00B. See also ANISOVICH 12.

$f_3(2300)$ $I^G(J^{PC}) = 0^+(3^{++})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2334 ± 25	200 ± 20	⁵⁷ BUGG	04A	RVUE	

⁵⁷ Partial wave analysis of the data on $p\bar{p} \rightarrow \bar{\Lambda}\Lambda$ from BARNES 00.

$f_1(2310)$ $I^G(J^{PC}) = 0^+(1^{++})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2310 ± 60	255 ± 70	ANISOVICH	00J	SPEC	

$\eta(2320)$ $I^G(J^{PC}) = 0^+(0^{-+})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2320 ± 15	230 ± 35	⁵⁸ ANISOVICH	00M	SPEC	

⁵⁸ From the combined analysis of $\bar{p}p \rightarrow \eta\eta\eta$ from ANISOVICH 00M and $\bar{p}p \rightarrow \eta\pi^0\pi^0$ from ANISOVICH 00J.

$\eta_4(2330)$ $I^G(J^{PC}) = 0^+(4^-)$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2328 ± 38	240 ± 90	ANISOVICH 00J	SPEC	2.0 $\bar{p}p \rightarrow \eta\pi^0\pi^0$	

$\omega(2330)$ $I^G(J^{PC}) = 0^-(1^{--})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2330 ± 30	435 ± 75	ATKINSON 88	OMEG	25-50 $\gamma p \rightarrow \rho^\pm \rho^0 \pi^\mp$	

$X(2340)$ $I^G(J^{PC}) = ?^?(?^{??})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2340 ± 20	180 ± 60	126	⁵⁹ BALTAY	75	HBC 15 $\pi^+ p \rightarrow p 5\pi$
⁵⁹ 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 $2\rho^+ \pi^-$.					

$\pi(2360)$ $I^G(J^{PC}) = 1^-(0^-)$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2360 ± 25	300^{+100}_{-50}	ANISOVICH 01F	SPEC	2.0 $\bar{p}p \rightarrow 3\pi^0, \pi^0\eta, \pi^0\eta'$	

$X(2360)$ $I^G(J^{PC}) = ?^?(4^{+?})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2360 ± 10	430 ± 30	ROZANSKA 80	SPRK	18 $\pi^- p \rightarrow p\bar{p}n$	

$X(2440)$ $I^G(J^{PC}) = ?^?(5^{-?})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2440 ± 10	310 ± 20	ROZANSKA 80	SPRK	18 $\pi^- p \rightarrow p\bar{p}n$	

$X(2540)$ $I^G(J^{PC}) = 0^+(0^{++})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2539 ± 14 $^{+38}_{-14}$	$274^{+77+126}_{-61-163}$	UEHARA	13	BELL	$\gamma\gamma \rightarrow K_S^0 K_S^0$

$\Gamma(\gamma\gamma) \times B(K\bar{K})$					
<u>VALUE (eV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>		
40^{+9+17}_{-7-40}	UEHARA	13	BELL	$\gamma\gamma \rightarrow K_S^0 K_S^0$	

$X(2632)$ $I^G(J^{PC}) = ?^?(?^{??})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2635.2 ± 3.3		⁶⁰ EVDOKIMOV 04	SELX	$X(2632) \rightarrow D^+ \eta$	
2631.6 ± 2.1	< 17	⁶¹ EVDOKIMOV 04	SELX	$X(2632) \rightarrow D^0 \delta^+ K^+$	

⁶⁰ From a mass difference to D_S^+ of 666.9 ± 3.3 MeV.

⁶¹ From a mass difference to D^0 of 767.0 ± 2.0 MeV.

$B(X(2632) \rightarrow D^0 K^+)/B(X(2632) \rightarrow D_S^+ \eta)$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>
0.14 ± 0.06	⁶² EVDOKIMOV 04	SELX

⁶² Possible interpretation of this decay pattern is discussed by YASUI 07.

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

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

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2710 ± 20	170 ± 40	ROZANSKA	80 SPRK	$18 \pi^- p \rightarrow p \bar{p} n$

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

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

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

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

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$3250 \pm 8 \pm 20$	45 ± 18	ALEEV	93 BIS2	$X(3250) \rightarrow \Lambda \bar{p} K^+$
$3265 \pm 7 \pm 20$	40 ± 18	ALEEV	93 BIS2	$X(3250) \rightarrow \bar{\Lambda} p K^-$

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$3245 \pm 8 \pm 20$	25 ± 11	ALEEV	93 BIS2	$X(3250) \rightarrow \Lambda \bar{p} K^+ \pi^\pm$
$3250 \pm 9 \pm 20$	50 ± 20	ALEEV	93 BIS2	$X(3250) \rightarrow \bar{\Lambda} p K^- \pi^\mp$
$3270 \pm 8 \pm 20$	25 ± 11	ALEEV	93 BIS2	$X(3250) \rightarrow K_S^0 p \bar{p} K^\pm$

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

<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$3350_{-20}^{+10} \pm 20$	$70_{-30}^{+40} \pm 40$	50 ± 10	⁶³ GABYSHEV	06A BELL	$B^- \rightarrow \Lambda_c^+ \bar{p} \pi^-$

⁶³ A similar enhancement in the $\Lambda_c^+ \bar{p}$ final state is also reported by BABAR collaboration in AUBERT 10H.

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