

Further States

OMITTED FROM SUMMARY TABLE

This section contains states observed by a single group or states poorly established that thus need confirmation. Publications that exclude earlier claims in this section are listed under 'Other Related Papers.'

QUANTUM NUMBERS, MASSES, WIDTHS, AND BRANCHING RATIOS

X(1070) $I^G(J^{PC}) = ?^?(0^{++})$				
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1072.4 ± 0.8	3.5^{+1.5}_{-1.0}	GRIGOR'EV	05	40 $\pi^- p \rightarrow K_S^0 K_S^0 n$

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 ± 8 ± 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>	
1480 ⁺¹⁰⁰ ₋₁₅₀	1030 ⁺⁸⁰ ₋₁₇₀	⁵ ANISOVICH	03	SPEC
1530 ⁺⁹⁰ ₋₂₅₀	560 ± 40	⁶ ANISOVICH	03	SPEC

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

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

X(1750) $I^G(J^{PC}) = ?^?(1^{--})$				
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1753.5 ± 1.5 ± 2.3	122.2 ± 6.2 ± 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

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

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

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

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

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

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

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
1874 ± 43 ± 96	385 ± 121 ± 114	CHUNG	02 E852	18.3 $\pi^- p \rightarrow \pi^+\pi^-\pi^- p$

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

VALUE	DOCUMENT ID	TECN	COMMENT
0.8 ± 0.2	⁸ CHUNG	02 E852	18.3 $\pi^- p \rightarrow \pi^+\pi^-\pi^- p$

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

VALUE	DOCUMENT ID	TECN	COMMENT
0.9 ± 0.3	⁸ CHUNG	02 E852	18.3 $\pi^- p \rightarrow \pi^+\pi^-\pi^- p$

 $\pi_2(1880) \quad I^G(J^{PC}) = 1^-(2^{+-})$

MASS (MeV)	WIDTH (MeV)	EVS	DOCUMENT ID	TECN	COMMENT
1876 ± 11 ± 67	146 ± 17 ± 62	145k	LU	05 E852	18 $\pi^- p \rightarrow \omega\pi^-\pi^0 p$
2003 ± 88 ± 148	306 ± 132 ± 121	69k	KUHN	04 E852	18 $\pi^- p \rightarrow \eta\pi^+\pi^-\pi^- p$
1880 ± 20	255 ± 45		ANISOVICH	01B	$\bar{p}p \rightarrow (a_2(1320)\eta)\pi^0$

$B(\pi_2(1880) \rightarrow a_2(1320)\eta) / B(\pi_2(1880) \rightarrow f_1(1285)\pi)$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
22.7 ± 7.3	69k	KUHN	04 E852	$18 \pi^- p \rightarrow \eta \pi^+ \pi^- \pi^- p$

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

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

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

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

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
1940 ± 40	155 ± 40	⁹ ANISOVICH	02 SPEC	$0.6\text{--}1.9 p \bar{p} \rightarrow \omega \pi^0, \omega \eta \pi^0, \pi^+ \pi^-$

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
1945 ± 20	115 ± 22	¹⁰ ANISOVICH	02B SPEC	$0.6\text{--}1.9 p \bar{p} \rightarrow \omega \eta, \omega \pi^0 \pi^0$

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
1960 ± 25	195 ± 60	¹⁰ ANISOVICH	02B SPEC	$0.6\text{--}1.9 p \bar{p} \rightarrow \omega \eta, \omega \pi^0 \pi^0$

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
1960 ± 35	230 ± 50	⁹ ANISOVICH	02 SPEC	$0.6\text{--}1.9 p \bar{p} \rightarrow \omega \pi^0, \omega \eta \pi^0, \pi^+ \pi^-$

 $\rho(1965)$ $I^G(J^{PC}) = 1^+(1^{--})$

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
1970 ± 30	260 ± 45	⁹ ANISOVICH	02 SPEC	$0.6\text{--}1.9 p \bar{p} \rightarrow \omega \pi^0, \omega \eta \pi^0, \pi^+ \pi^-$
2000 ± 30	295 ± 85	ANISOVICH	00J SPEC	

$h_1(1965)$		$I^G(J^{PC}) = 0^-(1^{+-})$				
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>		
1965 ± 45	345 ± 75	¹⁰ ANISOVICH	02B SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$		

$f_1(1970)$		$I^G(J^{PC}) = 0^+(1^{++})$				
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</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	¹⁰ ANISOVICH	02B SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$		

$a_2(1990)$		$I^G(J^{PC}) = 1^-(2^{++})$				
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>		
2003 ± 10 ± 19	249 ± 23 ± 32	LU	05 E852	18 $\pi^-p \rightarrow \omega\pi^-\pi^0p$		
1990 ⁺¹⁵ ₋₃₀	190 ± 50	ANISOVICH	99C SPEC			

$\rho(2000)$		$I^G(J^{PC}) = 1^+(1^{--})$				
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>			
2000 ± 30	295 ± 85	ANISOVICH	00J SPEC			

$f_2(2000)$		$I^G(J^{PC}) = 0^+(2^{++})$				
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>			
2001 ± 10	312 ± 32	ANISOVICH	00J SPEC			

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	11 ARMSTRONG 93D	E760		$\bar{p}p \rightarrow 3\pi^0 \rightarrow$	
~ 2100	~ 500	11 ANTIPOV	77 CIBS	—	6γ $25 \pi^- p \rightarrow$	
2214 ± 15	355 ± 21	12 BALTAY	77 HBC	0	$p\pi^- \rho_3$ $15 \pi^- p \rightarrow$	
2080 ± 40	340 ± 80	KALELKAR	75 HBC	+	$\Delta^{++} 3\pi$ $15 \pi^+ p \rightarrow$	
					$p\pi^+ \rho_3$	

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	VLADIMIRSKY03	SPEC		$\pi^- p \rightarrow$	
					$K_S^0 K_S^0 M M$	

π_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 E852	18 $\pi^- p \rightarrow$	
					$\omega \pi^- \pi^0 p$	
2005 ± 15	200 ± 40		ANISOVICH	01F SPEC	2.0 $\bar{p}p \rightarrow$	
					$3\pi^0,$	
					$\pi^0 \eta,$	
					$\pi^0 \eta'$	

η(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		

π_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>	
2013 ± 25 OUR AVERAGE						
2014 ± 20 ± 16	230 ± 32 ± 73	145k	LU	05 E852	18 $\pi^- p \rightarrow \omega \pi^- \pi^0 p$	
2001 ± 30 ± 92	333 ± 52 ± 49	69k	KUHN	04 E852	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	¹⁰ ANISOVICH	02B SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$	

$b_3(2025)$ $I^G(J^{PC}) = 1^+(3^{+-})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2032 ± 12	117 ± 11	⁹ ANISOVICH	02 SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\pi^0, \omega\eta\pi^0, \pi^+\pi^-$	

$\eta_2(2030)$ $I^G(J^{PC}) = 0^+(2^{-+})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</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>		
0.74 ± 0.17	¹³ ANISOVICH	00E SPEC			

$B(a_0\pi)/B(a_2\pi)_{L=2}$					
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>		
0.072 ± 0.016	¹³ ANISOVICH	00E SPEC			

$B(f_2\eta)/B(a_2\pi)_{L=2}$					
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>		
0.074 ± 0.026	¹³ ANISOVICH	00E SPEC			

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

$f_0(2060)$ $I^G(J^{PC}) = 0^+(0^{++})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
~ 2050	~ 120	¹⁴ OAKDEN	94 RVUE	0.36–1.55 $\bar{p}p \rightarrow \pi\pi$	
~ 2060	~ 50	¹⁴ OAKDEN	94 RVUE	0.36–1.55 $\bar{p}p \rightarrow \pi\pi$	

$\pi(2070)$ $I^G(J^{PC}) = 0^-(0^{-+})$					
<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 $\bar{p}p \rightarrow 3\pi^0, \pi^0\eta, \pi^0\eta'$	

$a_3(2070)$		$I^G(J^{PC}) = 1^-(3^{++})$			
MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN		
2070 ± 20	170 ± 40	ANISOVICH	99C	SPEC	

$X(2075)$		$I^G(J^{PC}) = ??(???)$			
MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT	
2075 ± 12 ± 5	90 ± 35 ± 9	¹ ABLIKIM	04J	BES2	$J/\psi \rightarrow K^- p \bar{\Lambda}$
¹ 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.					

$a_2(2080)$		$I^G(J^{PC}) = 1^-(2^{++})$			
MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN		
2060 ± 20	195 ± 30	ANISOVICH	99C	SPEC	
2100 ⁺¹⁰ ₋₃₀	360 ⁺⁴⁰ ₋₁₀₀	ANISOVICH	99E	SPEC	

$X(2080)$		$I^G(J^{PC}) = ??(???)$			
MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT	
2080 ± 10	110 ± 20	KREYMER	80	STRC	13 $\pi^- d \rightarrow p\bar{p}n(n_s)$

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

$a_1(2095)$		$I^G(J^{PC}) = 1^-(1^{++})$			
MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
2096 ± 17 ± 121	451 ± 41 ± 81	69k	KUHN	04	E852 18 $\pi^- p \rightarrow \eta\pi^+\pi^-\pi^-p$

$B(a_1(2095) \rightarrow f_1(1285)\pi) / B(a_1(2095) \rightarrow a_1(1260))$					
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
3.18 ± 0.64	69k	KUHN	04	E852	18 $\pi^- p \rightarrow \eta\pi^+\pi^-\pi^-p$

$\eta(2100)$		$I^G(J^{PC}) = 0^+(0^{-+})$			
MASS (MeV)	WIDTH (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
2103 ± 50	187 ± 75	586	¹⁵ BISELLO	89B	DM2 $J/\psi \rightarrow 4\pi\gamma$

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

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

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

ω(2145) $I^G(J^{PC}) = 0^-(1^{--})$				
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2150 ± 20	235 ± 30	ANISOVICH	01C SPEC	0.6–1.9 $\bar{p} p \rightarrow \omega \eta$
2145 ± 20	200 ± 25	ANISOVICH	00D SPEC	

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

ω₂(2175) $I^G(J^{PC}) = 0^-(2^{++})$				
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2175 ± 40	310^{+90}_{-45}	ANISOVICH	01F SPEC	2.0 $\bar{p} p \rightarrow 3\pi^0, \pi^0 \eta, \pi^0 \eta'$

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

ω₂(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	¹⁰ ANISOVICH	02B SPEC	0.6–1.9 $p \bar{p} \rightarrow \omega \eta, \omega \pi^0 \pi^0$

ω(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	¹⁰ ANISOVICH	02B SPEC	0.6–1.9 $p \bar{p} \rightarrow \omega \eta, \omega \pi^0 \pi^0$

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}	EVANGELISTA 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 $\pi^- p$	

h₁(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	10 ANISOVICH	02B SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$	

b₁(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	9 ANISOVICH	02 SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\pi^0, \omega\eta\pi^0, \pi^+\pi^-$	

ρ₂(2240) $I^G(J^{PC}) = 1^+(2^{--})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2225 ± 35	335 ⁺¹⁰⁰ ₋₅₀	9 ANISOVICH	02 SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\pi^0, \omega\eta\pi^0, \pi^+\pi^-$	

ρ₄(2240) $I^G(J^{PC}) = 1^+(4^{--})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2230 ± 25	210 ± 30	9 ANISOVICH	02 SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\pi^0, \omega\eta\pi^0, \pi^+\pi^-$	

π₂(2245) $I^G(J^{PC}) = 0^-(2^{-+})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2245 ± 60	320 ⁺¹⁰⁰ ₋₄₀	ANISOVICH	01F SPEC	2.0 $\bar{p}p \rightarrow 3\pi^0, \pi^0\eta, \pi^0\eta'$	

η₂(2250) $I^G(J^{PC}) = 0^+(2^{-+})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2248 ± 20	280 ± 20	ANISOVICH	00I SPEC		
2267 ± 14	290 ± 50	ANISOVICH	00J SPEC		

π₄(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	¹⁰ ANISOVICH	02B SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$		
$\omega_3(2255)$		$I^G(J^{PC}) = 0^-(3^{--})$				
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>		
2255±15	175 ± 30	¹⁰ ANISOVICH	02B SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$		
$X(2260)$		$I^G(J^{PC}) = 0^+(4^{+?})$				
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>		
2260±20	400 ± 100	EVANGELISTA 79	OMEG	10,16 $\pi^- p \rightarrow \bar{p}pn$		
$\rho(2265)$		$I^G(J^{PC}) = 1^+(1^{--})$				
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>		
2265±40	325 ± 80	⁹ ANISOVICH	02 SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\pi^0, \omega\eta\pi^0, \pi^+\pi^-$		
$a_1(2270)$		$I^G(J^{PC}) = 1^-(1^{++})$				
<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 $\bar{p}p \rightarrow 3\pi^0, \pi^0\eta, \pi^0\eta'$		
$a_2(2270)$		$I^G(J^{PC}) = 1^-(2^{++})$				
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>			
2265±20	235 ⁺⁶⁰ _{−35}	ANISOVICH	99C SPEC			
2280±30	280 ± 50	ANISOVICH	99E SPEC			
$h_3(2275)$		$I^G(J^{PC}) = 0^-(3^{+-})$				
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>		
2275±25	190 ± 45	¹⁰ ANISOVICH	02B SPEC	0.6–1.9 $p\bar{p} \rightarrow \omega\eta, \omega\pi^0\pi^0$		
$a_4(2280)$		$I^G(J^{PC}) = 1^-(4^{++})$				
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>			
2300±20	230 ± 40	ANISOVICH	99C SPEC			
2260±15	180 ± 20	ANISOVICH	99E SPEC			

$\eta(2280)$ $I^G(J^{PC}) = 0^+(0^-+)$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>		
2285 ± 20	325 ± 30	ANISOVICH	00J	SPEC	
2320 ± 15	230 ± 35	¹⁶ ANISOVICH	00M	SPEC	
<hr/>					
$\rho(2280)$ $I^G(J^{PC}) = 1^+(1^{--})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2280 ± 50	440 ± 110	ATKINSON	85	OMEG	20–70 $\gamma p \rightarrow p \omega \pi^+ \pi^- \pi^0$
<hr/>					
$\omega_3(2285)$ $I^G(J^{PC}) = 0^-(3^{--})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2285 ± 60	230 ± 40	¹⁰ ANISOVICH	02B	SPEC	0.6–1.9 $p \bar{p} \rightarrow \omega \eta, \omega \pi^0 \pi^0$
<hr/>					
$X(2290)$ $I^G(J^{PC}) = 0^-(1^{--})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>		
2290 ± 20	275 ± 35	² BUGG	04A	RVUE	
² Partial wave analysis of the data on $p \bar{p} \rightarrow \bar{\Lambda} \Lambda$ from BARNES 00.					
<hr/>					
$f_3(2300)$ $I^G(J^{PC}) = 0^+(3^{++})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>		
2303 ± 15	214 ± 29	ANISOVICH	00J	SPEC	
<hr/>					
$\rho_3(2300)$ $I^G(J^{PC}) = 1^+(3^{--})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>		
2300 ⁺⁵⁰ ₋₈₀	340 ± 50	ANISOVICH	00J	SPEC	
<hr/>					
$a_3(2310)$ $I^G(J^{PC}) = 1^-(3^{++})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>		
2310 ± 40	180 ⁺¹²⁰ ₋₆₀	ANISOVICH	99C	SPEC	
<hr/>					
$f_1(2310)$ $I^G(J^{PC}) = 0^+(1^{++})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>		
2310 ± 60	255 ± 70	ANISOVICH	00J	SPEC	
<hr/>					
$\eta_4(2320)$ $I^G(J^{PC}) = 0^+(4^{-+})$					
<u>MASS (MeV)</u>	<u>WIDTH (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>		
2328 ± 38	240 ± 90	ANISOVICH	00J	SPEC	
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$f_0(2330)$ $I^G(J^{PC}) = 0^+(0^{++})$

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN
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• • • We do not use the following data for averages, fits, limits, etc. • • •

2337 ± 14	217 ± 33	ANISOVICH	00J SPEC
~ 2321	~ 223	HASAN	94

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

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

 $a_1(2340)$ $I^G(J^{PC}) = 1^-(1^{++})$

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN
2340 ± 40	230 ± 70	ANISOVICH	99E SPEC

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

MASS (MeV)	WIDTH (MeV)	EVTs	DOCUMENT ID	TECN	COMMENT
2340 ± 20	180 ± 60	126	¹⁷ BALTAY	75 HBC	$15 \pi^+ p \rightarrow p 5\pi$

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

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

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
2360 ± 10	430 ± 30	ROZANSKA	80 SPRK	$18 \pi^- p \rightarrow p \bar{p} n$

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

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

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID	TECN	COMMENT
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2632.6 ± 1.8 OUR AVERAGE

2635.2 ± 3.3		³ EVDOKIMOV	04 SELX	$X(2632) \rightarrow D_s^+ \eta$
2631.6 ± 2.1	< 17	⁴ EVDOKIMOV	04 SELX	$X(2632) \rightarrow D_s^0 K^+$

³ From a mass difference to D_s^+ of 666.9 ± 3.3 MeV.⁴ From a mass difference to D_s^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	EVDOKIMOV 04	SELX

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

<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	$X(3250) \rightarrow K_S^0 p \bar{p} K^\pm$

FOOTNOTES for Further States

- ⁵ 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.
- ⁶ 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.
- ⁷ Our estimate.
- ⁸ Using the observable fractions of 50.0% $\rho \pi$, 56.5% $f_2 \pi$, and 11.8% $\rho_3 \pi$.
- ⁹ From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02.
- ¹⁰ From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.
- ¹¹ Cannot determine spin to be 3.
- ¹² BALTAY 77 favors $J^P = ,3^+$.
- ¹³ Corrected for all decay modes.
- ¹⁴ See SEMENOV 99 and KLOET 96.
- ¹⁵ ASTON 81B sees no peak, has 850 events in Ajinenko+Barth bins. ARESTOV 80 sees no peak.
- ¹⁶ Combined fit along with data of ANISOVICH 00J.
- ¹⁷ 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 $2\rho^+ \pi^-$.

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BUZZO	97	ZPHY C76 475	A. Buzzo <i>et al.</i>	(JETSET Collab.)
CHIBA	97	PR D55 40	M. Chiba <i>et al.</i>	(FUKI, INUS, KEK, SANG+)
BARNES	94	PL B331 203	P.D. Barnes <i>et al.</i>	(PS185 Collab.)
CARBONELL	93	PL B306 407	J. Carbonell, K.V. Protasov, O.D. Dalkarov	(ISNG+)
FERRER	93	NP A558 191c	A. Ferrer, A.A. Grigorian	(WA56 Collab.)
CHIBA	91	PR D44 1933	M. Chiba <i>et al.</i>	(FUKI, KEK, SANG, OSAK+)
GRAF	91	PR D44 1945	N.A. Graf <i>et al.</i>	(UCI, PENN, NMSU, KARLK+)
TANIMORI	90	PR D41 744	T. Tanimori <i>et al.</i>	(KEK, INUS, KYOT+)
ALBRECHT	89M	PL B217 205	H. Albrecht <i>et al.</i>	(ARGUS Collab.)

BEHREND	89D	PL B218 493	H.J. Behrend <i>et al.</i>	(CELLO Collab.)
BUSENITZ	89	PR D40 1	J.K. Busenitz <i>et al.</i>	(ILL, FNAL)
CHIBA	88	PL B202 447	M. Chiba, K. Doi	(FUKI, INUS, KEK, SANG, OSAK+)
CHIBA	87	PR D36 3321	M. Chiba <i>et al.</i>	(FUKI, INUS, KEK, SANG+)
FRANKLIN	87	PL B184 111	J. Franklin	
LIU	87	PRL 58 2288	K.F. Liu, B.A. Li	(STON)
ADIELS	86	PL B182 405	L. Adiels <i>et al.</i>	(STOH, BASL, LASL, THES+)
ANGELOPO...	86	PL B178 441	A. Angelopoulos <i>et al.</i>	(ATHU, UCI, KARLK+)
ARMSTRONG	86C	PL B175 383	T.A. Armstrong <i>et al.</i>	(BNL, HOUS, PENN+)
BRIDGES	86	PRL 56 211	D.L. Bridges <i>et al.</i>	(BLSU, BNL, CASE+)
BRIDGES	86B	PRL 56 215	D.L. Bridges <i>et al.</i>	(SYRA, CASE)
BRIDGES	86C	PRL 57 1534	D.L. Bridges <i>et al.</i>	(SYRA)
BRIDGES	86D	PL B180 313	D.L. Bridges <i>et al.</i>	(SYRA, BNL, CASE+)
DOVER	86	PRL 57 1207	C.B. Dover <i>et al.</i>	(BNL)
ANGELOPO...	85	PL 159B 210	A. Angelopoulos <i>et al.</i>	(ATHU, UCI, UNM+)
BODENKAMP	85	NP B255 717	J. Bodenkamp <i>et al.</i>	(KARLK, KARLE, DESY)
ADIELS	84	PL 138B 235	L. Adiels <i>et al.</i>	(BASL, KARLK, KARLE, STOH+)
ATKINSON	84F	NP B239 1	M. Atkinson <i>et al.</i>	(BONN, CERN, GLAS+)
AZOOZ	84	NP B244 277	F. Azooz, I. Butterworth	(LOIC, RHEL, SACL+)
CLOUGH	84	PL 146B 299	A.S. Clough <i>et al.</i>	(SURR, LOQM, ANIK+)
AZOOZ	83	PL 122B 471	F. Azooz, I. Butterworth	(LOIC, RHEL, SACL+)
BARNETT	83	PR D27 493	B. Barnett <i>et al.</i>	(JHU)
BODENKAMP	83	PL 133B 275	J. Bodenkamp <i>et al.</i>	(KARLK, KARLE, DESY)
RICHTER	83	PL 126B 284	B. Richter, L. Adiels	(BASL, KARLK, KARLE, STOH+)
AJALTOUNI	82	NP B209 301	Z. Ajaltouni <i>et al.</i>	(CERN, NEUC+)
ASTON	81B	NP B189 205	D. Aston <i>et al.</i>	(BONN, CERN, EPOL, GLAS+)
BANKS	81	PL 100B 191	A.D. Banks <i>et al.</i>	(LIVP, CERN)
CHUNG	81	PRL 46 395	S.U. Chung <i>et al.</i>	(BNL, BRAN, CINC+)
HARRIS	81	ZPHY C9 275	R.M. Harris <i>et al.</i>	(SEAT, UCB)
ARESTOV	80	IHEP 80-165	Y.I. Arestov <i>et al.</i>	(SERP)
ASTON	80D	PL 93B 517	D. Aston	(BONN, CERN, EPOL, GLAS, LANC+)
BIONTA	80	PRL 44 909	R.M. Bionta <i>et al.</i>	(BNL, CMU, FNAL+)
CARROLL	80	PRL 44 1572	A.S. Carroll <i>et al.</i>	(BNL, PRIN)
DAUM	80E	PL 90B 475	C. Daum <i>et al.</i>	(AMST, CERN, CRAC, MPIM+)
DEFOIX	80	NP B162 12	C. Defoix <i>et al.</i>	(CDEF, PISA)
HAMILTON	80	PRL 44 1179	R.P. Hamilton <i>et al.</i>	(LBL, BNL, MTHO)
HAMILTON	80B	PRL 44 1182	R.P. Hamilton <i>et al.</i>	(LBL, BNL, MTHO)
KREYMER	80	PR D22 36	A.E. Kreymer <i>et al.</i>	(IND, PURD, SLAC+)
ALBERI	79	PL 83B 247	G. Alberi <i>et al.</i>	(TRST, CERN, IFRJ)
ARMSTRONG	79	PL B85 304	T.A. Armstrong <i>et al.</i>	(DESY, GLAS)
BARTALUCCI	79	NC 49A 207	S. Bartalucci <i>et al.</i>	(DESY, FRAS)
DELCOURT	79	PL 86B 395	B. Delcourt <i>et al.</i>	(LALO)
GIBBARD	79	PRL 42 1593	B.G. Gibbard <i>et al.</i>	(CORN)
SAKAMOTO	79	NP B158 410	S. Sakamoto <i>et al.</i>	(INUS)
CARTER	78B	NP B141 467	A.A. Carter	(LOQM)
ESPOSITO	78	LNC 22 305	B. Esposito, F. Felicetti	(FRAS, NAPL, PADO+)
PAVLOPO...	78	PL 72B 415	P. Pavlopoulos <i>et al.</i>	(KARLK, KARLE, BASL+)
PETERSON	78	PR D18 3955	D. Peterson <i>et al.</i>	(CORN, HARV)
BENKHEIRI	77	PL 68B 483	P. Benkheiri <i>et al.</i>	(CERN, CDEF, EPOL+)
BRUCKNER	77	PL 67B 222	W. Bruckner <i>et al.</i>	(MPIH, HEIDP, CERN)
ABASHIAN	76	PR D13 5	A. Abashian <i>et al.</i>	(ILL, ANL, CHIC+)
BRAUN	76	PL 60B 481	H.M. Braun <i>et al.</i>	(STRB)
CHALOUPKA	76	PL 61B 487	V. Chaloupka <i>et al.</i>	(CERN, LIVP, MONS+)
ALSTON-...	75	PRL 35 1685	M. Alston-Garnjost <i>et al.</i>	(LBL, MTHO)
D'ANDLAU	75	PL 58B 223	C. d'Andlau <i>et al.</i>	(CDEF, PISA)
KALOGERO...	75	PRL 34 1047	T. Kalogeropoulos, G.S. Tzanakos	(SYRA)
CARROLL	74	PRL 32 247	A.S. Carroll <i>et al.</i>	(BNL)
THOMPSON	74	NP B69 220	G. Thompson <i>et al.</i>	(PURD)
DONALD	73	NP B61 333	R.A. Donald <i>et al.</i>	(LIVP, PARIS)
ALEXANDER	72	NP B45 29	G. Alexander <i>et al.</i>	(TELA)
ANTIPOV	72	PL 40 147	Y.M. Antipov <i>et al.</i>	(SERP)
TAKAHASHI	72	PR D6 1266	K. Takahashi <i>et al.</i>	(TOHOK, PENN, NDAM+)
BENVENUTI	71	PRL 27 283	A.C. Benvenuti <i>et al.</i>	(WISC)
SABAU	71	LNC 1 514	M. Sabau, J.L. Uretsky	(BUCH, ANL)
BAUD	70	PL 31B 549	R. Baud <i>et al.</i>	(CERN Boson Spectrometer Collab.)
ANDERSON	69	PRL 22 1390	E.W. Anderson <i>et al.</i>	(BNL, CMU)
BOESEBECK	68	NP B4 501	K. Boesebeck <i>et al.</i>	(AACH, BERL, CERN)
HUSON	68	PL 28B 208	R. Huson <i>et al.</i>	(ORSAY, MILA, UCLA)
ALLES-...	67B	NC 50A 776	V. Alles-Borelli <i>et al.</i>	(CERN, BONN)
DANYSZ	67B	NC 51A 801	J.A. Danyasz, B.R. French, V. Simak	(CERN)

CHIKOVANI	66	PL 22 233	G.E. Chikovani <i>et al.</i>	(SERP)
FOCACCI	66	PRL 17 890	M.N. Focacci <i>et al.</i>	(CERN)
