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

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

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

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN
1480^{+100}_{-150}	1030^{+80}_{-170}	[1] ANISOVICH	03	SPEC
1530^{+90}_{-250}	560 ± 40	[2] ANISOVICH	03	SPEC

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

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

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1600 ± 100	400 ± 200	[3] ALBRECHT	91F	ARG	10.2 $e^+e^- \to e^+e^-2(\pi^+\pi^-)$

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

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

$X(1750)$ $I^G(J^{PC}) = ?^?(1^{--})$

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 $\gamma p \to K^+K^-p$

$B(X(1750) \to \overline{K}^*(892)^0 K^0 \to K^\pm \pi^\mp K^0_S)/B(X(1750) \to K^+ K^-)$

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

$B(X(1750) \to \overline{K}^*(892)^\pm K^\mp \to K^\pm \pi^\mp K^0_S)/B(X(1750) \to K^+ K^-)$

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

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

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	$\gamma p \to n\pi^+\pi^+\pi^-$

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

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

$X(1860)$ $I^G(J^{PC}) = ?^?(?^{??})$

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1859^{+6}_{-27}	<30	BAI	03F	BES2	$J/\psi \to \gamma p \overline{p}$

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
~ 1870	~ 10	DALKAROV	97	RVUE	0.0 $\overline{p}d \to p3\pi^-2\pi^+$

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

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

$a_3(1875)$ $I^G(J^{PC}) = 0^+(1^{--})$

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

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.8 ± 0.2	[4] CHUNG	02	MPS	18.3 $\pi^- p \to \pi^+\pi^-\pi^- p$

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.9 ± 0.3	[4] CHUNG	02	MPS	18.3 $\pi^- p \to \pi^+ \pi^- \pi^- p$

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		COMMENT
1880 ± 20	255 ± 45	ANISOVICH	01B	$\overline{p}p \to (a_2(1320)\eta)\pi^0$

$a_1(1930)$ $I^G(J^{PC}) = 0^-(1^{++})$

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

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

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

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1940 ± 40	155 ± 40	[5] ANISOVICH	02	SPEC	0.6–1.9 $p\overline{p} \to \omega\pi^0$, $\omega\eta\pi^0$, $\pi^+\pi^-$

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1945 ± 20	115 ± 22	[6] ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta$, $\omega\pi^0\pi^0$

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1960 ± 25	195 ± 60	[6] ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta$, $\omega\pi^0\pi^0$

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
1960 ± 35	230 ± 50	[5] ANISOVICH	02	SPEC	0.6–1.9 $p\overline{p} \to \omega\pi^0$, $\omega\eta\pi^0$, $\pi^+\pi^-$

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

MASS (MeV)	*WIDTH* (MeV)		*DOCUMENT ID*		*TECN*	*COMMENT*
1970 ± 30	260 ± 45	[5]	ANISOVICH	02	SPEC	0.6–1.9 $p\overline{p} \to \omega\pi^0$, $\omega\eta\pi^0$, $\pi^+\pi^-$
2000 ± 30	295 ± 85		ANISOVICH	00J	SPEC	

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

MASS (MeV)	*WIDTH* (MeV)		*DOCUMENT ID*		*TECN*	*COMMENT*
1965 ± 45	345 ± 75	[6]	ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta$, $\omega\pi^0\pi^0$

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

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

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

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

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

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

$\omega_2(1975)$ $I^G(J^{PC}) = 0^-(2^{--})$

MASS (MeV)	*WIDTH* (MeV)		*DOCUMENT ID*		*TECN*	*COMMENT*
1975 ± 20	175 ± 25	[6]	ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta$, $\omega\pi^0\pi^0$

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

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*
1990^{+15}_{-30}	190 ± 50	ANISOVICH	99C	SPEC

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

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*
2000 ± 30	295 ± 85	ANISOVICH	00J	SPEC

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN
2001 ± 10	312 ± 32	ANISOVICH	00J	SPEC

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	CHG	COMMENT
1964 ± 35	225 ± 50	[7] ARMSTRONG	93D	E760		$\overline{p}p \rightarrow 3\pi^0 \rightarrow 6\gamma$
~ 2100	~ 500	[7] ANTIPOV	77	CIBS	$-$	25 $\pi^- p \rightarrow p\pi^- \rho_3$
2214 ± 15	355 ± 21	[8] BALTAY	77	HBC	0	15 $\pi^- p \rightarrow \Delta^{++} 3\pi$
2080 ± 40	340 ± 80	KALELKAR	75	HBC	$+$	15 $\pi^+ p \rightarrow p\pi^+ \rho_3$

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
$1998 \pm 3 \pm 5$	<15	VLADIMIRSKY	03	SPEC	$\pi^- p \rightarrow K^0_S K^0_S M M$

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2005 ± 15	200 ± 40	ANISOVICH	01F	SPEC	2.0 $\overline{p}p \rightarrow 3\pi^0$, $\pi^0\eta$, $\pi^0\eta'$

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

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

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

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

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

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

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2025 ± 20	145 ± 30	[6] ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \rightarrow \omega\eta$, $\omega\pi^0\pi^0$

$b_3(2025)$ $I^G(J^{PC}) = 1^+(3^{+-})$

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2032 ± 12	117 ± 11	[5] ANISOVICH	02	SPEC	0.6–1.9 $p\overline{p} \to \omega\pi^0$, $\omega\eta\pi^0$, $\pi^+\pi^-$

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

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*
$2030 \pm 5 \pm 15$	$205 \pm 10 \pm 15$	ANISOVICH	00E	SPEC

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

VALUE	*DOCUMENT ID*		*TECN*
0.74 ± 0.17	[9] ANISOVICH	00E	SPEC

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

VALUE	*DOCUMENT ID*		*TECN*
0.072 ± 0.016	[9] ANISOVICH	00E	SPEC

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

VALUE	*DOCUMENT ID*		*TECN*
0.074 ± 0.026	[9] ANISOVICH	00E	SPEC

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

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*
2048 ± 8	213 ± 34	ANISOVICH	00J	SPEC

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

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
~ 2050	~ 120	[10] OAKDEN	94	RVUE	0.36–1.55 $\overline{p}p \to \pi\pi$
~ 2060	~ 50	[10] OAKDEN	94	RVUE	0.36–1.55 $\overline{p}p \to \pi\pi$

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

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

$a_3(2070)$ $I^G(J^{PC}) = 1^-(3^{++})$

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*
2070 ± 20	170 ± 40	ANISOVICH	99C	SPEC

$a_2(2080)$ $I^G(J^{PC}) = 1^-(2^{++})$

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 $\pi^- d \rightarrow p\overline{p}n(n_s)$

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

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

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

MASS (MeV)	*WIDTH* (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
2103 ± 50	187 ± 75	586	[11] 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 $\pi^- p \rightarrow 2\eta X$

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

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2110 ± 10	330 ± 20	EVANGELISTA	79	OMEG	10,16 $\pi^- p \rightarrow \overline{p}pn$

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

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

$\omega(2145)$ $I^G(J^{PC}) = 0^-(1^{--})$

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2150 ± 20	235 ± 30	ANISOVICH	01C	SPEC	0.6–1.9 $\overline{p}p \rightarrow \omega\eta$
2145 ± 20	200 ± 25	ANISOVICH	00D	SPEC	

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

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

$a_2(2175)$ $I^G(J^{PC}) = 0^-(2^{++})$

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

$\eta(2190)$ $I^G(J^{PC}) = 0^+(0^{-+})$

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

$\omega_2(2195)$ $I^G(J^{PC}) = 0^-(2^{--})$

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2195 ± 30	225 ± 40	[6] ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta$, $\omega\pi^0\pi^0$

$\omega(2205)$ $I^G(J^{PC}) = 0^-(1^{--})$

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2205 ± 30	350 ± 90	[6] ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta$, $\omega\pi^0\pi^0$

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2210^{+79}_{-21}	203^{+437}_{-87}	EVANGELISTA	79B	OMEG	10 $\pi^- p \to K^+ K^- n$

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2207 ± 22	130	CASO	70	HBC	11.2 $\pi^- p$

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2215 ± 40	325 ± 55	[6] ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta$, $\omega\pi^0\pi^0$

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

MASS (MeV)	WIDTH (MeV)	DOCUMENT ID		TECN	COMMENT
2240 ± 35	320 ± 85	[5] ANISOVICH	02	SPEC	0.6–1.9 $p\overline{p} \to \omega\pi^0$, $\omega\eta\pi^0$, $\pi^+\pi^-$

$\rho_2(2240)$ $I^G(J^{PC}) = 1^+(2^{--})$

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2225 ± 35	$335^{+100}_{-\ 50}$	[5] ANISOVICH	02	SPEC	0.6–1.9 $p\overline{p} \to \omega\pi^0$, $\omega\eta\pi^0$, $\pi^+\pi^-$

$\rho_4(2240)$ $I^G(J^{PC}) = 1^+(4^{--})$

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2230 ± 25	210 ± 30	[5] ANISOVICH	02	SPEC	0.6–1.9 $p\overline{p} \to \omega\pi^0$, $\omega\eta\pi^0$, $\pi^+\pi^-$

$\pi_2(2245)$ $I^G(J^{PC}) = 0^-(2^{-+})$

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2245 ± 60	$320^{+100}_{-\ 40}$	ANISOVICH	01F	SPEC	2.0 $\overline{p}p \to 3\pi^0$, $\pi^0\eta$, $\pi^0\eta'$

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

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

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

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

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

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2250 ± 30	150 ± 50	[6] ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta$, $\omega\pi^0\pi^0$

$\omega_3(2255)$ $I^G(J^{PC}) = 0^-(3^{--})$

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2255 ± 15	175 ± 30	[6] ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta$, $\omega\pi^0\pi^0$

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

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

$\rho(2265)$ $I^G(J^{PC}) = 1^+(1^{--})$

MASS (MeV)	*WIDTH* (MeV)		*DOCUMENT ID*		*TECN*	*COMMENT*
2265 ± 40	325 ± 80	[5]	ANISOVICH	02	SPEC	0.6–1.9 $p\overline{p} \to \omega\pi^0$, $\omega\eta\pi^0$, $\pi^+\pi^-$

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

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

$a_2(2270)$ $I^G(J^{PC}) = 1^-(2^{++})$

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*
2265 ± 20	235^{+60}_{-35}	ANISOVICH	99C	SPEC
2280 ± 30	280 ± 50	ANISOVICH	99E	SPEC

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

MASS (MeV)	*WIDTH* (MeV)		*DOCUMENT ID*		*TECN*	*COMMENT*
2275 ± 25	190 ± 45	[6]	ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta$, $\omega\pi^0\pi^0$

$a_4(2280)$ $I^G(J^{PC}) = 1^-(4^{++})$

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*
2300 ± 20	230 ± 40	ANISOVICH	99C	SPEC
2260 ± 15	180 ± 20	ANISOVICH	99E	SPEC

$\eta(2280)$ $I^G(J^{PC}) = 0^+(0^{-+})$

MASS (MeV)	*WIDTH* (MeV)		*DOCUMENT ID*		*TECN*
2285 ± 20	325 ± 30		ANISOVICH	00J	SPEC
2320 ± 15	230 ± 35	[12]	ANISOVICH	00M	SPEC

$\rho(2280)$ $I^G(J^{PC}) = 1^+(1^{--})$

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2280 ± 50	440 ± 110	ATKINSON	85	OMEG	20–70 $\gamma p \to p\omega\pi^+\pi^-\pi^0$

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

MASS (MeV)	*WIDTH* (MeV)		*DOCUMENT ID*		*TECN*	*COMMENT*
2285 ± 60	230 ± 40	[6]	ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta$, $\omega\pi^0\pi^0$

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

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*
2303 ± 15	214 ± 29	ANISOVICH	00J	SPEC

$\rho_3(2300)$ $I^G(J^{PC}) = 1^+(3^{--})$

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*
2300^{+50}_{-80}	340 ± 50	ANISOVICH	00J	SPEC

$a_3(2310)$ $I^G(J^{PC}) = 1^-(3^{++})$

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*
2310 ± 40	$180^{+120}_{-\ 60}$	ANISOVICH	99C	SPEC

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

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

$\eta_4(2320)$ $I^G(J^{PC}) = 0^+(4^{-+})$

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*
2328 ± 38	240 ± 90	ANISOVICH	00J	SPEC

$f_0(2330)$ $I^G(J^{PC}) = 0^+(0^{++})$

MASS (MeV)	*WIDTH* (MeV)	*DOCUMENT ID*		*TECN*
• • • 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	[13] 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 $\overline{p}p \to 3\pi^0$, $\pi^0\eta$, $\pi^0\eta'$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

FOOTNOTES for Further States

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

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

[3] Our estimate.

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

[5] From the combined analysis of ANISOVICH 00J, ANISOVICH 01D, ANISOVICH 01E, and ANISOVICH 02.

[6] From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.

[7] Cannot determine spin to be 3.

[8] BALTAY 77 favors $J^P = {,}3^+$.

[9] Corrected for all decay modes.

[10] See SEMENOV 99 and KLOET 96.

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

[12] Combined fit along with data of ANISOVICH 00J.

[13] 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 $2\rho^+\pi^-$.

REFERENCES for Further States

ANISOVICH	03	EPJ A16 229	V.V. Anisovich *et al.*	
BAI	03F	PRL 91 022001	J.Z. Bai *et al.*	(BES Collab.)
VLADIMIRSKY	03	PAN 66 700	V.V. Vladimirsky *et al.*	
		Translated from YAF 66 729.		
ANISOVICH	02	PL B542 8	A.V. Anisovich *et al.*	
ANISOVICH	02B	PL B542 19	A.V. Anisovich *et al.*	
CHUNG	02	PR D65 072001	S.U. Chung *et al.*	
LINK	02K	PL B545 50	J.M. Link *et al.*	(FNAL FOCUS Collab.)
ANISOVICH	01B	PL B500 222	A.V. Anisovich *et al.*	
ANISOVICH	01C	PL B507 23	A.V. Anisovich *et al.*	
ANISOVICH	01D	PL B508 6	A.V. Anisovich *et al.*	
ANISOVICH	01E	PL B513 281	A.V. Anisovich *et al.*	
ANISOVICH	01F	PL B517 261	A.V. Anisovich *et al.*	
ANISOVICH	00D	PL B476 15	A.V. Anisovich *et al.*	
ANISOVICH	00E	PL B477 19	A.V. Anisovich *et al.*	
ANISOVICH	00I	PL B491 40	A.V. Anisovich *et al.*	
ANISOVICH	00J	PL B491 47	A.V. Anisovich *et al.*	
ANISOVICH	00M	PL B496 145	A.V. Anisovich *et al.*	
FILIPPI	00	PL B495 284	A. Filippi *et al.*	(OBELIX Experiment)
ANISOVICH	99C	PL B452 173	A.V. Anisovich *et al.*	
ANISOVICH	99E	PL B452 187	A.V. Anisovich *et al.*	
BUGG	99	PL B458 511	D.V. Bugg *et al.*	
FERRER	99	EPJ C10 249	A. Ferrer *et al.*	
SEMENOV	99	SPU 42 847	S.V. Semenov	
		Translated from UFN 42 937.		
DALKAROV	97	PL B392 229	O.D. Dalkarov *et al.*	(LEBD)
KLOET	96	PR D53 6120	W.M. Kloet, F. Myhrer	(RUTG, NORD)
PROKOSHKIN	96	SPD 41 247	Y.D. Prokoshkin, V.D. Samoilenko	(SERP)
		Translated from DANS 348 481.		
HASAN	94	PL B334 215	A. Hasan, D.V. Bugg	(LOQM)
OAKDEN	94	NP A574 731	M.N. Oakden, M.R. Pennington	(DURH)
ALEEV	93	PAN 56 1358	A.N. Aleev *et al.*	(BIS-2 Collab.)
		Translated from YAF 56 100.		
ARMSTRONG	93D	PL B307 399	T.A. Armstrong *et al.*	(FNAL, FERR, GENO+)
ALBRECHT	91F	ZPHY C50 1	H. Albrecht *et al.*	(ARGUS Collab.)
CONDO	91	PR D43 2787	G.T. Condo *et al.*	(SLAC Hybrid Collab.)
BISELLO	89B	PR D39 701	G. Busetto *et al.*	(DM2 Collab.)

ATKINSON	88	ZPHY C38 535	M. Atkinson *et al.*	(BONN, CERN, GLAS+)
DAFTARI	87	PRL 58 859	I.K. Daftari *et al.*	(SYRA)
ALDE	86D	NP B269 485	D.M. Alde *et al.*	(BELG, LAPP, SERP, CERN+)
BRIDGES	86D	PL B180 313	D.L. Bridges *et al.*	(SYRA, BNL, CASE+)
GREEN	86	PRL 56 1639	D.R. Green *et al.*	(FNAL, ARIZ, FSU+)
ATKINSON	85	ZPHY C29 333	M. Atkinson *et al.*	(BONN, CERN, GLAS+)
DENNEY	83	PR D28 2726	D.L. Denney *et al.*	(IOWA, MICH)
ASTON	81B	NP B189 205	D. Aston *et al.*	(BONN, CERN, EPOL, GLAS+)
ARESTOV	80	IHEP 80-165	Y.I. Arestov *et al.*	(SERP)
CHLIAPNIK...	80	ZPHY C3 285	P.V. Chliapnikov *et al.*	(SERP, BRUX, MONS)
KREYMER	80	PR D22 36	A.E. Kreymer *et al.*	(IND, PURD, SLAC+)
ROZANSKA	80	NP B162 505	M. Rozanska *et al.*	(MPIM, CERN)
EVANGELISTA	79	NP B153 253	C. Evangelista *et al.*	(BARI, BONN, CERN+)
EVANGELISTA	79B	NP B154 381	C. Evangelista *et al.*	(BARI, BONN, CERN+)
BALTAY	78	PR D17 52	C. Baltay *et al.*	(COLU, BING)
ANTIPOV	77	NP B119 45	Y.M. Antipov *et al.*	(SERP, GEVA)
BALTAY	77	PRL 39 591	C. Baltay, C.V. Cautis, M. Kalelkar	(COLU)
BALTAY	75	PRL 35 891	C. Baltay *et al.*	(COLU, BING)
KALELKAR	75	Thesis Nevis 207	M.S. Kalelkar	(COLU)
CASO	70	LNC 3 707	C. Caso *et al.*	(GENO, HAMB, MILA, SACL)

OTHER RELATED PAPERS

ROSNER	03B	PR D68 014004	J.L. Rosner	
ABE	02K	PRL 88 181803	K. Abe *et al.*	(BELLE Collab.)
ABE	02W	PRL 89 151802	K. Abe *et al.*	(BELLE Collab.)
ANISOVICH	01E	PL B513 281	A.V. Anisovich *et al.*	
ABELE	00B	EPJ C17 583	A. Abele *et al.*	
BARNES	00	PR C62 055203	P.D. Barnes *et al.*	
BOLONKIN	00	JETPL 72 166	B.V. Bolonkin *et al.*	
		Translated from ZETFP 72 240.		
ANISOVICH	99F	NP A651 253	A.V. Anisovich *et al.*	
CHIBA	99	PR C60 035204	M. Chiba *et al.*	
BUZZO	97	ZPHY C76 475	A. Buzzo *et al.*	(JETSET Collab.)
CHIBA	97	PR D55 40	M. Chiba *et al.*	(FUKI, INUS, KEK, SANG+)
BARNES	94	PL B331 203	P.D. Barnes *et al.*	(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 *et al.*	(FUKI, KEK, SANG, OSAK+)
GRAF	91	PR D44 1945	N.A. Graf *et al.*	(UCI, PENN, NMSU, KARLK+)
TANIMORI	90	PR D41 744	T. Tanimori *et al.*	(KEK, INUS, KYOT+)
ALBRECHT	89M	PL B217 205	H. Albrecht *et al.*	(ARGUS Collab.)
BEHREND	89D	PL B218 493	H.J. Behrend *et al.*	(CELLO Collab.)
BUSENITZ	89	PR D40 1	J.K. Busenitz *et al.*	(ILL, FNAL)
CHIBA	88	PL B202 447	M. Chiba, K. Doi	(FUKI, INUS, KEK, SANG, OSAK+)
CHIBA	87	PR D36 3321	M. Chiba *et al.*	(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 *et al.*	(STOH, BASL, LASL, THES+)
ANGELOPO...	86	PL B178 441	A. Angelopoulos *et al.*	(ATHU, UCI, KARLK+)
ARMSTRONG	86C	PL B175 383	T.A. Armstrong *et al.*	(BNL, HOUS, PENN+)
BRIDGES	86	PRL 56 211	D.L. Bridges *et al.*	(BLSU, BNL, CASE+)
BRIDGES	86B	PRL 56 215	D.L. Bridges *et al.*	(SYRA, CASE)
BRIDGES	86C	PRL 57 1534	D.L. Bridges *et al.*	(SYRA)
BRIDGES	86D	PL B180 313	D.L. Bridges *et al.*	(SYRA, BNL, CASE+)
DOVER	86	PRL 57 1207	C.B. Dover *et al.*	(BNL)
ANGELOPO...	85	PL 159B 210	A. Angelopoulos *et al.*	(ATHU, UCI, UNM+)
BODENKAMP	85	NP B255 717	J. Bodenkamp *et al.*	(KARLK, KARLE, DESY)
ADIELS	84	PL 138B 235	L. Adiels *et al.*	(BASL, KARLK, KARLE, STOH+)
ATKINSON	84F	NP B239 1	M. Atkinson *et al.*	(BONN, CERN, GLAS+)
AZOOZ	84	NP B244 277	F. Azooz, I. Butterworth	(LOIC, RHEL, SACL+)
CLOUGH	84	PL 146B 299	A.S. Clough *et al.*	(SURR, LOQM, ANIK+)
AZOOZ	83	PL 122B 471	F. Azooz, I. Butterworth	(LOIC, RHEL, SACL+)
BARNETT	83	PR D27 493	B. Barnett *et al.*	(JHU)
BODENKAMP	83	PL 133B 275	J. Bodenkamp *et al.*	(KARLK, KARLE, DESY)
RICHTER	83	PL 126B 284	B. Richter, L. Adiels	(BASL, KARLK, KARLE, STOH+)
AJALTOUNI	82	NP B209 301	Z. Ajaltouni *et al.*	(CERN, NEUC+)
ASTON	81B	NP B189 205	D. Aston *et al.*	(BONN, CERN, EPOL, GLAS+)
BANKS	81	PL 100B 191	A.D. Banks *et al.*	(LIVP, CERN)
CHUNG	81	PRL 46 395	S.U. Chung *et al.*	(BNL, BRAN, CINC+)

HARRIS	81	ZPHY C9 275	R.M. Harris *et al.*	(SEAT, UCB)
ARESTOV	80	IHEP 80-165	Y.I. Arestov *et al.*	(SERP)
ASTON	80D	PL 93B 517	D. Aston	(BONN, CERN, EPOL, GLAS, LANC+)
BIONTA	80	PRL 44 909	R.M. Bionta *et al.*	(BNL, CMU, FNAL+)
CARROLL	80	PRL 44 1572	A.S. Carroll *et al.*	(BNL, PRIN)
DAUM	80E	PL 90B 475	C. Daum *et al.*	(AMST, CERN, CRAC, MPIM+)
DEFOIX	80	NP B162 12	C. Defoix *et al.*	(CDEF, PISA)
HAMILTON	80	PRL 44 1179	R.P. Hamilton *et al.*	(LBL, BNL, MTHO)
HAMILTON	80B	PRL 44 1182	R.P. Hamilton *et al.*	(LBL, BNL, MTHO)
KREYMER	80	PR D22 36	A.E. Kreymer *et al.*	(IND, PURD, SLAC+)
ALBERI	79	PL 83B 247	G. Alberi *et al.*	(TRST, CERN, IFRJ)
ARMSTRONG	79	PL B85 304	T.A. Armstrong *et al.*	(DESY, GLAS)
BARTALUCCI	79	NC 49A 207	S. Bartalucci *et al.*	(DESY, FRAS)
DELCOURT	79	PL 86B 395	B. Delcourt *et al.*	(LALO)
GIBBARD	79	PRL 42 1593	B.G. Gibbard *et al.*	(CORN)
SAKAMOTO	79	NP B158 410	S. Sakamoto *et al.*	(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 *et al.*	(KARLK, KARLE, BASL+)
PETERSON	78	PR D18 3955	D. Peterson *et al.*	(CORN, HARV)
BENKHEIRI	77	PL 68B 483	P. Benkheiri *et al.*	(CERN, CDEF, EPOL+)
BRUCKNER	77	PL 67B 222	W. Bruckner *et al.*	(MPIH, HEIDP, CERN)
ABASHIAN	76	PR D13 5	A. Abashian *et al.*	(ILL, ANL, CHIC+)
BRAUN	76	PL 60B 481	H.M. Braun *et al.*	(STRB)
CHALOUPKA	76	PL 61B 487	V. Chaloupka *et al.*	(CERN, LIVP, MONS+)
ALSTON-...	75	PRL 35 1685	M. Alston-Garnjost *et al.*	(LBL, MTHO)
D'ANDLAU	75	PL 58B 223	C. d'Andlau *et al.*	(CDEF, PISA)
KALOGERO...	75	PRL 34 1047	T. Kalogeropoulos, G.S. Tzanakos	(SYRA)
CARROLL	74	PRL 32 247	A.S. Carroll *et al.*	(BNL)
THOMPSON	74	NP B69 220	G. Thompson *et al.*	(PURD)
DONALD	73	NP B61 333	R.A. Donald *et al.*	(LIVP, PARIS)
ALEXANDER	72	NP B45 29	G. Alexander *et al.*	(TELA)
ANTIPOV	72	PL 40 147	Y.M. Antipov *et al.*	(SERP)
TAKAHASHI	72	PR D6 1266	K. Takahashi *et al.*	(TOHOK, PENN, NDAM+)
BENVENUTI	71	PRL 27 283	A.C. Benvenuti *et al.*	(WISC)
SABAU	71	LNC 1 514	M. Sabeu, J.L. Uretsky	(BUCH, ANL)
BAUD	70	PL 31B 549	R. Baud *et al.*	(CERN Boson Spectrometer Collab.)
ANDERSON	69	PRL 22 1390	E.W. Anderson *et al.*	(BNL, CMU)
BOESEBECK	68	NP B4 501	K. Boesebeck *et al.*	(AACH, BERL, CERN)
HUSON	68	PL 28B 208	R. Huson *et al.*	(ORSAY, MILA, UCLA)
ALLES-...	67B	NC 50A 776	V. Alles-Borelli *et al.*	(CERN, BONN)
DANYSZ	67B	NC 51A 801	J.A. Danysz, B.R. French, V. Simak	(CERN)
CHIKOVANI	66	PL 22 233	G.E. Chikovani *et al.*	(SERP)
FOCACCI	66	PRL 17 890	M.N. Focacci *et al.*	(CERN)