CITATION: R.M. Barnett *et al.* Physical Review D54, 1 (1996) and 1997 off-year partial update for the 1998 edition (URL: http://pdg.lbl.gov)

$\overline{N}N(1100\text{–}3600)$

OMITTED FROM SUMMARY TABLE

This entry contains various high mass, unflavored structures coupled to the baryon-antibaryon system, as well as quasi-nuclear bound states below threshold.

$\overline{N}N(1100\text{–}3600)$ MASSES AND WIDTHS

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

VALUE (MeV)	*DOCUMENT ID*
1100 to 3600 OUR LIMIT	

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

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1167 ±7	[1] CHIBA	91	CNTR		$\overline{p}d \to \gamma X$
1191.0±9.9	[1] CHIBA	87	CNTR	0	0. $\overline{p}p \to \gamma X$
1210 ±5.0	[1,2,3,4] RICHTER	83	CNTR	0	Stopped $\overline{p}$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1325 ±5	[1] CHIBA	91	CNTR		$\overline{p}d \to \gamma X$
1329.2±7.6	[1] CHIBA	87	CNTR	0	0. $\overline{p}p \to \gamma X$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1390.9±6.3	[1] CHIBA	87	CNTR	0	0. $\overline{p}p \to \gamma X$
1395	[1,3,4,5] PAVLOPO...	78	CNTR		Stopped $\overline{p}$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
~ 1410	BETTINI	66	DBC	0	0. $\overline{p}N \to 5\pi$
~ 100	BETTINI	66	DBC	0	0. $\overline{p}N \to 5\pi$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1468± 6	[6] BRIDGES	86B	DBC	0	0. $\overline{p}N \to 2\pi^- \pi^+ \pi^0$
88±18	[6] BRIDGES	86B	DBC	0	0. $\overline{p}N \to 2\pi^- \pi^+ \pi^0$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1512 ± 7	[1] CHIBA	91	CNTR		$\overline{p}d \to \gamma X$
1523.8± 3.6	[1] CHIBA	87	CNTR	0	0. $\overline{p}p \to \gamma X$
1522 ± 7	[6] BRIDGES	86B	DBC	0	0. $\overline{p}N \to 2\pi^- \pi^+$
59 ±12	[6] BRIDGES	86B	DBC	0	0. $\overline{p}N \to 2\pi^- \pi^+$

VALUE (MeV)		*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1577.8 ± 3.4	[1]	CHIBA	87	CNTR	0	0. $\overline{p}p \rightarrow \gamma X$
1594 ± 9	[6]	BRIDGES	86B	DBC	$-$	0. $\overline{p}N \rightarrow 2\pi^- \pi^+ \pi^0$
81 ± 12	[6]	BRIDGES	86B	DBC	$-$	0. $\overline{p}N \rightarrow 2\pi^- \pi^+ \pi^0$

VALUE (MeV)		*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1633.6 ± 4.1	[1]	CHIBA	87	CNTR	0	0. $\overline{p}p \rightarrow \gamma X$
$1637.1^{+5.6}_{-7.3}$		ADIELS	84	CNTR		$\overline{p}$He

VALUE (MeV)		*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1638 ± 3.0	[1,2,3,4]	RICHTER	83	CNTR	0	Stopped $\overline{p}$

VALUE (MeV)		*DOCUMENT ID*		*TECN*	*COMMENT*
$1644.0^{+5.6}_{-7.3}$		ADIELS	84	CNTR	$\overline{p}$He

VALUE (MeV)		*DOCUMENT ID*		*TECN*	*COMMENT*
1646	[1,3,4,5]	PAVLOPO...	78	CNTR	Stopped $\overline{p}$

VALUE (MeV)		*DOCUMENT ID*		*TECN*	*COMMENT*
$1687.1^{+5.0}_{-4.3}$		ADIELS	84	CNTR	$\overline{p}$He
1684	[1,3,4,5]	PAVLOPO...	78	CNTR	Stopped $\overline{p}$

VALUE (MeV)		*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1693 ± 2	[1]	CHIBA	91	CNTR		$\overline{p}d \rightarrow \gamma X$
1694 ± 2.0	[1,2,3,4]	RICHTER	83	CNTR	0	Stopped $\overline{p}$

VALUE (MeV)		*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1713.0 ± 2.6	[1]	CHIBA	87	CNTR	0	0. $\overline{p}p \rightarrow \gamma X$

VALUE (MeV)		*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1731.0 ± 1.5	[1]	CHIBA	87	CNTR	0	0. $\overline{p}p \rightarrow \gamma X$

VALUE (MeV)		*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1771 ± 1.0	[1,3,4,7]	RICHTER	83	CNTR	0	Stopped $\overline{p}$

[1] Not seen by GRAF 91.
[2] Not seen by CHIBA 88, ANGELOPOULOS 86, ADIELS 86.
[3] They looked for radiative transitions to bound $p\overline{p}$ states, mono-energetic γ rays detected.
[4] Observed widths consistent with experimental resolution.
[5] Not seen by ADIELS 86.
[6] From analysis of difference of π^- and π^+ spectra.
[7] Not seen by CHIBA 88, ANGELOPOULOS 86.

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1856.6 ± 5	BRIDGES	86D	SPEC	0	0. $\overline{p}d \rightarrow \pi\pi N$
20 ± 5	BRIDGES	86D	SPEC	0	0. $\overline{p}d \rightarrow \pi\pi N$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
∼ 1870	[9] DALKAROV	96	ASTE	−	0.0 $\overline{p}d \to p3\pi^- 2\pi^+$
∼ 10	[9] DALKAROV	96	ASTE	−	0.0 $\overline{p}d \to p3\pi^- 2\pi^+$
1873±2.5	BRIDGES	86D	SPEC	0	0. $\overline{p}d \to \pi\pi N$
< 5	BRIDGES	86D	SPEC	0	0. $\overline{p}d \to \pi\pi N$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
1897±17	[10] ABASHIAN	76	STRC	8 $\pi^- p \to p3\pi$
110±82	[10] ABASHIAN	76	STRC	8 $\pi^- p \to p3\pi$
1897± 1	KALOGERO...	75	DBC	$\overline{p}n$ annihilation near threshold
25± 6	KALOGERO...	75	DBC	$\overline{p}n$ annihilation near threshold

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
∼ 1920	[11] EVANGELISTA	79	OMEG	10,16 $\pi^- p \to \overline{p}p$
∼ 190	EVANGELISTA	79	OMEG	10,16 $\pi^- p \to \overline{p}p$

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
$1937.3^{+1.3}_{-0.7}$		[12] FRANKLIN	87	SPEC		0.586 $\overline{p}p$
< 3.0		[12] FRANKLIN	87	SPEC		0.586 $\overline{p}p$
1930 ± 2		[13] ASTON	80D	OMEG		$\gamma p \to p\overline{p}X$
12 ± 7		[13] ASTON	80D	OMEG		$\gamma p \to p\overline{p}X$
1940 ± 1	36	DAUM	80E	CNTR	0	93 $pp \to \overline{p}pX$
∼ 6.0		DAUM	80E	CNTR		93 $pp \to \overline{p}pX$
1949 ±10		[14] DEFOIX	80	HBC	0	$\overline{p}p \to 5\pi$
80 ±20		[14] DEFOIX	80	HBC	0	$\overline{p}p \to 5\pi$
1939 ± 2		[15] HAMILTON	80B	CNTR	0	*S* channel $\overline{p}p$
22 ± 6		[15] HAMILTON	80B	CNTR	0	*S* channel $\overline{p}p$
1935.5± 1.0		SAKAMOTO	79	HBC	0	0.37–0.73 $\overline{p}p$
2.8± 1.4		SAKAMOTO	79	HBC	0	0.37–0.73 $\overline{p}p$
1939 ± 3		BRUCKNER	77	SPEC	0	0.4–0.85 $\overline{p}p$
< 4.0		BRUCKNER	77	SPEC	0	0.4–0.85 $\overline{p}p$
1935.9± 1.0		[16] CHALOUPKA	76	HBC	0	$\overline{p}p$ total,elastic
$8.8^{+4.3}_{-3.2}$		[17] CHALOUPKA	76	HBC	0	$\overline{p}p$ total,elastic
1942 ± 5		[18] D'ANDLAU	75	HBC	0	0.175–0.750 $\overline{p}p$
57.5± 5		[19] D'ANDLAU	75	HBC	0	0.175–0.750 $\overline{p}p$
$1934.4^{+2.6}_{-1.4}$		[20] KALOGERO...	75	DBC	−	$\overline{p}N$ annihilation
11^{+11}_{-4}		[21] KALOGERO...	75	DBC	−	$\overline{p}N$ annihilation
1932 ± 2		[16] CARROLL	74	CNTR		*S* channel $\overline{p}p \to d$
9^{+4}_{-3}		[17] CARROLL	74	CNTR		*S* channel $\overline{p}p \to d$
1968		[22] BENVENUTI	71	HBC	0	0.1–0.8 $\overline{p}p$
35		[22] BENVENUTI	71	HBC	0	0.1–0.8 $\overline{p}p$
1940 ± 8		CLINE	70	HBC	0	0.25–0.74 $\overline{p}p$
49 ± 9		CLINE	70	HBC	0	0.25–0.74 $\overline{p}p$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1949±10	[23] DEFOIX	80	HBC	0	0.0–1.2 $\overline{p}p \rightarrow 5\pi$
80±20	[23] DEFOIX	80	HBC	0	0.0–1.2 $\overline{p}p \rightarrow 5\pi$

VALUE (MeV)	*DOCUMENT ID*		*COMMENT*
2011± 7	[24] FERRER	93	$\pi^- p \rightarrow p p \overline{p} \pi^- \pi^0$
25^{+10}_{-25}	FERRER	93	$\pi^- p \rightarrow p p \overline{p} \pi^- \pi^0$
2025	GIBBARD	79	$e^- p \rightarrow e^- p p \overline{p}$
< 30	GIBBARD	79	$e^- p \rightarrow e^- p p \overline{p}$
2020± 3	BENKHEIRI	77	$\pi^- p \rightarrow p p \overline{p} \pi^-$
24±12	BENKHEIRI	77	$\pi^- p \rightarrow p p \overline{p} \pi^-$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
2022± 6	[25] AZOOZ	83	HYBR	+	6 $\overline{p}p \rightarrow p\overline{n}3\pi$
14±13	[25] AZOOZ	83	HYBR	+	6 $\overline{p}p \rightarrow p\overline{n}3\pi$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
2023± 5	BODENKAMP	83	SPEC	0	$\gamma p \rightarrow \overline{p} p p$
27±12	BODENKAMP	83	SPEC	0	$\gamma p \rightarrow \overline{p} p p$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
2026± 5	[25] AZOOZ	83	HYBR	−	4 $\overline{p}p \rightarrow \overline{p}n3\pi$
20±11	[25] AZOOZ	83	HYBR	−	4 $\overline{p}p \rightarrow \overline{p}n3\pi$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
2080±10	[26] KREYMER	80	STRC	0	13 $\pi^- d \rightarrow p\overline{p}n(n)$
110±20	[26] KREYMER	80	STRC	0	13 $\pi^- d \rightarrow p\overline{p}n(n)$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2090±20	[27] KREYMER	80	STRC	13 $\pi^- d \rightarrow n p \overline{p} \pi^- p$
170±50	[27] KREYMER	80	STRC	13 $\pi^- d \rightarrow n p \overline{p} \pi^- p$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
∼ 2110	[28] EVANGELISTA	79	OMEG	10,16 $\pi^- p \rightarrow \overline{p}p$
∼ 330	[28] EVANGELISTA	79	OMEG	10,16 $\pi^- p \rightarrow \overline{p}p$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2110±10	[29] ROZANSKA	80	SPRK	18 $\pi^- p \rightarrow p\overline{p}n$
190±10	[29] ROZANSKA	80	SPRK	18 $\pi^- p \rightarrow p\overline{p}n$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
2141	[30] DONALD	73	HBC	0	$\overline{p}p$ S channel
14	[30] DONALD	73	HBC	0	$\overline{p}p$ S channel

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2180±10	[31] ROZANSKA	80	SPRK	18 $\pi^- p \rightarrow p\overline{p}n$
270±10	[31] ROZANSKA	80	SPRK	18 $\pi^- p \rightarrow p\overline{p}n$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
2207±13	[32] ALLES-...	67B	HBC	0	5.7 $\overline{p}p$
62±52	[32] ALLES-...	67B	HBC	0	5.7 $\overline{p}p$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2210^{+79}_{-21}	EVANGELISTA	79B	OMEG	10 $\pi^- p \rightarrow K^+ K^- n$
∼ 203	EVANGELISTA	79B	OMEG	10 $\pi^- p \rightarrow K^+ K^- n$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2231.9 ±0.1	[8] BARNES	94	SPEC	0–46 $\overline{p}p \rightarrow \overline{\Lambda}\Lambda$
0.59±0.25	[8] BARNES	94	SPEC	0–46 $\overline{p}p \rightarrow \overline{\Lambda}\Lambda$
∼ 2229.2	CARBONELL	93	RVUE	$\overline{p}p \rightarrow \Lambda\overline{\Lambda}$
∼ 1.8	CARBONELL	93	RVUE	$\overline{p}p \rightarrow \Lambda\overline{\Lambda}$

[8] Supersedes CARBONELL 93.

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
∼ 2260	[33] EVANGELISTA	79	OMEG	10,16 $\pi^- p \rightarrow \overline{p}p$
∼ 440	[33] EVANGELISTA	79	OMEG	10,16 $\pi^- p \rightarrow \overline{p}p$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
2307± 6	ALPER	80	CNTR	0	62 $\pi^- p \rightarrow K^+ K^- n$
245±20	ALPER	80	CNTR	0	62 $\pi^- p \rightarrow K^+ K^- n$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2380±10	[34] ROZANSKA	80	SPRK	18 $\pi^- p \rightarrow p\overline{p}n$
380±20	[34] ROZANSKA	80	SPRK	18 $\pi^- p \rightarrow p\overline{p}n$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2450±10	[35] ROZANSKA	80	SPRK	18 $\pi^- p \rightarrow p\overline{p}n$
280±20	[35] ROZANSKA	80	SPRK	18 $\pi^- p \rightarrow p\overline{p}n$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
2480±30	[36] CARTER	77	CNTR	0	0.7–2.4 $\overline{p}p \rightarrow \pi\pi$
210±25	[36] CARTER	77	CNTR	0	0.7–2.4 $\overline{p}p \rightarrow \pi\pi$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
∼ 2500	[37] CARTER	78B	CNTR	0	0.7–2.4 $\overline{p}p \rightarrow K^- K^+$
∼ 150	[37] CARTER	78B	CNTR	0	0.7–2.4 $\overline{p}p \rightarrow K^- K^+$

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

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
2850 ± 5	[38] BRAUN	76	DBC	$-$	5.5 $\overline{p}d \to N\overline{N}\pi$
$<$ 39	[38] BRAUN	76	DBC	$-$	5.5 $\overline{p}d \to N\overline{N}\pi$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
3370 ± 10	[39] ALEXANDER	72	HBC	0	6.94 $\overline{p}p$
150 ± 40	[39] ALEXANDER	72	HBC	0	6.94 $\overline{p}p$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
3600 ± 20	[39] ALEXANDER	72	HBC	0	6.94 $\overline{p}p$
140 ± 20	[39] ALEXANDER	72	HBC	0	6.94 $\overline{p}p$

[9] From a phenomenological analysis of ASTERIX data.
[10] Produced backwards.
[11] $I(J^P) = 1(1^-)$ from a mass dependent partial-wave analysis taking solution A.
[12] From reanalysis of data from JASTRZEMBSKI 81.
[13] Not seen by BUSENITZ 89.
[14] From energy dependence of 5π cross section. $I^G = 1^-$ from observation of $\omega\rho$ decay. $P = +$ and $J > 1$. $a_2(1320)\pi\pi$ also seen.
[15] $I = 0$ favored, $J = 0$ or 1, seen in total $\overline{p}p$ total cross section. Primarily from annihilation reactions. Not seen in $\overline{p}d$ total and annihilation cross sections.
[16] Narrow bump seen in total $\overline{p}p$, $\overline{p}d$ cross sections. Isospin uncertain. Not seen in $\overline{p}p$ charge exchange by ALSTON-GARNJOST 75, CHALOUPKA 76. Integrated cross section three times larger than BRUCKNER 77.
[17] Narrow bump seen in total $\overline{p}p$, $\overline{p}d$ cross sections. Isospin uncertain. Not seen in $\overline{p}p$ charge exchange by ALSTON-GARNJOST 75, CHALOUPKA 76. Integrated cross section three times larger than BRUCKNER 77. Not seen by CLOUGH 84.
[18] From energy dependence of far backward elastic scattering. Some indication of additional structure.
[19] From energy dependence of far backward elastic scattering. Some indication of additional structure.
[20] Not seen by ALBERI 79 with comparable statistics.
[21] Not seen by ALBERI 79 with comparable statistics.
[22] Seen as a bump in the $\overline{p}p \to K^0_S K^0_L$ cross section with $J^{PC} = 1^{--}$.
[23] Isospin 1 favored.
[24] Not seen by AJALTOUNI 82, ARMSTRONG 79.
[25] Not seen by BIONTA 80, CARROLL 80, HAMILTON 80, BANKS 81, CHUNG 81, BARNETT 83.
[26] Neutron spectator. See also $np\overline{p}\pi^-(p)$ channel following.
[27] Proton spectator. See also $p\overline{p}n(n)$ channel above.
[28] $I(J^P) = 1(3^-)$ from a mass dependent partial-wave analysis taking solution A.
[29] $I(J^P) = 1(3^-)$ from amplitude analysis assuming one-pion exchange.
[30] Seen in final state $\omega\pi^+\pi^-$.
[31] $I(J^P) = 0(2^+)$ from amplitude analysis assuming one-pion exchange.
[32] ALLES-BORELLI 67B see neutral mode only $\pi^+\pi^-\pi^0$.
[33] $I(J^P) = 0(4^+)$ from a mass dependent partial-wave analysis taking solution A.
[34] $I(J^P) = 0(4^+)$ from amplitude analysis assuming one-pion exchange.
[35] $I(J^P) = 1(5^-)$ from amplitude analysis assuming one-pion exchange.
[36] $I(J^P) = 1(5^-)$ from amplitude analysis of $\overline{p}p \to \pi\pi$.
[37] I=0,1 $J^P = 5^-$ from Barrelet-zero analysis.
[38] Decays to $\overline{N}N$ and $\overline{N}N\pi$. Not seen by BARNETT 83.
[39] Decays to $4\pi^+4\pi^-$.

$\overline{N}N$(1100–3600) REFERENCES

DALKAROV	96	JETPL 64 87	+Voronov+	(LEBD)
		Translated from ZETFP 64 81.		
Also	96	JETPL 64 87	Dalkarov, Voronov+	(LEBD)
		Translated from ZETFP 64 81.		
BARNES	94	PL B331 203	+Birien+	(PS185 Collab.)
CARBONELL	93	PL B306 407	+Protasov, Dalkarov	(ISNG, LEBD)
FERRER	93	NP A558 191c	+Grigonian	(WA56 Collab.)
CHIBA	91	PR D44 1933	+Fujitani+	(FUKI, KEK, SANG, OSAK, TMU)
GRAF	91	PR D44 1945	+Fero, Gee+	(UCI, PENN, NMSU, KARLK, KARLE, ATHU)
BUSENITZ	89	PR D40 1	+Olszewski, Callahan+	(ILL, FNAL)
CHIBA	88	PL B202 447	+Doi	(FUKI, INUS, KEK, SANG, OSAK, TMU)
CHIBA	87	PR D36 3321	+Doi+	(FUKI, INUS, KEK, SANG, OSAK, TMU)
DAFTARI	87	PRL 58 859	+Gray, Kalogeropoulos, Roy	(SYRA)
FRANKLIN	87	PL B184 81		
ADIELS	86	PL B182 405	+Backenstoss+	(STOH, BASL, LASL, THES, CERN)
ANGELOPO...	86	PL B178 441	Angelopoulos+	(ATHU, UCI, KARLK, KARLE, NMSU, PENN)
BRIDGES	86B	PRL 56 215	+Daftari, Kalogeropoulos, Debbe+	(SYRA, CASE)
BRIDGES	86D	PL B180 313	+Brown, Daftari+	(SYRA, BNL, CASE, UMD, COLU)
ADIELS	84	PL 138B 235	+	(BASL, KARLK, KARLE, STOH, STRB, THES)
CLOUGH	84	PL 146B 299	+Beard, Bugg+	(SURR, LOQM, ANIK, TRST, GEVA)
AZOOZ	83	PL 122B 471	+Butterworth	(LOIC, RHEL, SACL, SLAC, TOHOK+)
BARNETT	83	PR D27 493	+Blockus, Burka, Chien, Christian+	(JHU)
BODENKAMP	83	PL 133B 275	+Fries, Behrend, Fenner+	(KARLK, KARLE, DESY)
RICHTER	83	PL 126B 284	+Adiels	(BASL, KARLK, KARLE, STOH, STRB, THES)
AJALTOUNI	82	NP B209 301	+Bachman+	(+, CERN, NEUC+)
BANKS	81	PL 100B 191	+Booth, Campbell, Armstrong+	(LIVP, CERN)
CHUNG	81	PRL 46 395	+Bensinger+	(BNL, BRAN, CINC, FSU, MASD)
JASTRZEM...	81	PR D23 2784	Jastrzembski, Mandelkern+	(TEMP, UCI, UNM)
ALPER	80	PL 94B 422	+Becker+	(AMST, CERN, CRAC, MPIM, OXF+)
ASTON	80D	PL 93B 517		(BONN, CERN, EPOL, GLAS, LANC, MCHS, ORSAY+)
BIONTA	80	PRL 44 909	+Carroll, Edelstein+	(BNL, CMU, FNAL, MASD)
CARROLL	80	PRL 44 1572	+Chiang, Johnson, Cester, Webb+	(BNL, PRIN)
DAUM	80E	PL 90B 475	+Hertzberger+	(AMST, CERN, CRAC, MPIM, OXF+)
DEFOIX	80	NP B162 12	+Dobrzynski, Angelini, Bigi+	(CDEF, PISA)
HAMILTON	80	PRL 44 1179	+Pun, Tripp, Lazarus+	(LBL, BNL, MTHO)
HAMILTON	80B	PRL 44 1182	+Pun, Tripp, Lazarus+	(LBL, BNL, MTHO)
KREYMER	80	PR D22 36	+Baggett, Fieguth+	(IND, PURD, SLAC, VAND)
ROZANSKA	80	NP B162 505	+Blum, Dietl, Grayer, Lorenz+	(MPIM, CERN)
ALBERI	79	PL 83B 247	+Alvear, Castelli, Poropat+	(TRST, CERN, IFRJ)
ARMSTRONG	79	PL B85 304	+Baccari, Belletti, Booth+	(DESY, GLAS)
EVANGELISTA	79	NP B153 253	+	(BARI, BONN, CERN, DARE, GLAS, LIVP+)
EVANGELISTA	79B	NP B154 381	+	(BARI, BONN, CERN, DARE, GLAS, LIVP+)
GIBBARD	79	PRL 42 1593	+Ahrens, Berkelman, Cassel, Day, Harding+	(CORN)
SAKAMOTO	79	NP B158 410	+Hashimoto, Sai, Yamamoto+	(INUS)
CARTER	78B	NP B141 467		(LOQM)
PAVLOPO...	78	PL 72B 415	Pavlopoulos+	(KARLK, KARLE, BASL, CERN, STOH, STRB)
BENKHEIRI	77	PL 68B 483	+Boucrot+	(CERN, CDEF, EPOL, LALO)
BRUCKNER	77	PL 67B 222	+Granz, Ingham, Kilian+	(MPIH, HEIDP, CERN)
CARTER	77	PL 67B 117	+Coupland, Eisenhandler, Astbury+	(LOQM, RHEL) JP
ABASHIAN	76	PR D13 5	+Watson, Gelfand, Buttram+	(ILL, ANL, CHIC, ISU)
BRAUN	76	PL 60B 481	+Brick, Fridman, Gerber, Juillot, Maurer+	(STRB)
CHALOUPKA	76	PL 61B 487	+	(CERN, LIVP, MONS, PADO, ROMA, TRST)
ALSTON-...	75	PRL 35 1685	Alston-Garnjost, Kenney, Pollard, Ross, Tripp+	(LBL, MTHO)
D'ANDLAU	75	PL 58B 223	+Cohen-Ganouna, Laloum, Lutz, Petri	(CDEF, PISA)
KALOGERO...	75	PRL 34 1047	Kalogeropoulos, Tzanakos	(SYRA)
CARROLL	74	PRL 32 247	+Chiang, Kycia, Li, Mazur, Michael+	(BNL)
DONALD	73	NP B61 333	+Edwards, Gibbins, Briand, Duboc+	(LIVP, PARIS)
ALEXANDER	72	NP B45 29	+Bar-Nir, Benary, Dagan+	(TELA)
BENVENUTI	71	PRL 27 283	+Cline, Rutz, Reeder, Scherer	(WISC)
CLINE	70	Preprint	+English, Reeder	(WISC)
ALLES-...	67B	NC 50A 776	Alles-Borelli, French, Frisk+	(CERN, BONN) G
BETTINI	66	NC 42A 695	+Cresti, Limentani, Bertanza, Bigi+	(PADO, PISA)

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LIU	87	PRL 58 2288	+Kiu, Li	(STON)
ARMSTRONG	86C	PL B175 383	+Chu, Clement, Elinon+	(BNL, HOUS, PENN, RICE)
BRIDGES	86	PRL 56 211	+Brown+	(BLSU, BNL, CASE, COLU, UMD, SYRA)
BRIDGES	86C	PRL 57 1534	+Daftari, Kalogeropoulos+	(SYRA) JP
DOVER	86	PRL 57 1207	+	(BNL) JP
ANGELOPO...	85	PL 159B 210	Angelopoulos+	(ATHU, UCI, UNM, PENN, TEMP)
BODENKAMP	85	NP B255 717	+Fries, Behrend, Hesse+	(KARLK, KARLE, DESY)
AZOOZ	84	NP B244 277	+Butterworth	(LOIC, RHEL, SACL, SLAC, TOHOK+)