$\overline{N}N(1100–3600)$

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.

$\overline{N}N$(1100–3600) 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. $\overline{p}n \rightarrow \rho^- \pi^+ \pi^-$
111±8±15	DAFTARI	87	DBC	0	0. $\overline{p}n \rightarrow \rho^- \pi^+ \pi^-$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1167 ±7	[1] CHIBA	91	CNTR		$\overline{p}d \rightarrow \gamma X$
1191.0±9.9	[1] CHIBA	87	CNTR	0	0. $\overline{p}p \rightarrow \gamma X$
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		$\overline{p}d \rightarrow \gamma X$
1329.2±7.6	[1] CHIBA	87	CNTR	0	0. $\overline{p}p \rightarrow \gamma X$

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

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

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

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

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 $\overline{p}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
1812.3±1.2	CHIBA	97	CNTR	$\overline{p}d \rightarrow nX$
3.7±1.3	CHIBA	97	CNTR	$\overline{p}d \rightarrow nX$

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	[8] DALKAROV	97	RVUE	–	0.0 $\overline{p}d \rightarrow$ $p3\pi^-2\pi^+$
~ 10	[8] DALKAROV	97	RVUE	–	0.0 $\overline{p}d \rightarrow$ $p3\pi^-2\pi^+$
1873 ± 2.5	BRIDGES	86D	SPEC	0	0. $\overline{p}d \rightarrow \pi\pi N$
< 5	BRIDGES	86D	SPEC	0	0. $\overline{p}d \rightarrow \pi\pi N$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
1897 ± 17	[9] ABASHIAN	76	STRC	8 $\pi^- p \rightarrow p3\pi$
110 ± 82	[9] ABASHIAN	76	STRC	8 $\pi^- p \rightarrow p3\pi$
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	[10] EVANGELISTA	79	OMEG	10,16 $\pi^- p \rightarrow \overline{p}p$
~ 190	EVANGELISTA	79	OMEG	10,16 $\pi^- p \rightarrow \overline{p}p$

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

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1949 ± 10	[22] DEFOIX	80	HBC	0	0.0–1.2 $\overline{p}p \rightarrow 5\pi$
80 ± 20	[22] DEFOIX	80	HBC	0	0.0–1.2 $\overline{p}p \rightarrow 5\pi$

VALUE (MeV)	*DOCUMENT ID*		*COMMENT*
2011 ± 7	[23] FERRER	93	$\pi^- p \rightarrow p p \overline{p} \pi^- \pi^0$
25^{+10}_{-25}	[23] 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	[24] AZOOZ	83	HYBR	+	6 $\overline{p}p \rightarrow p\overline{n}3\pi$
14 ± 13	[24] 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	$\gamma p \rightarrow \overline{p}pp$
27 ± 12	BODENKAMP	83	SPEC	0	$\gamma p \rightarrow \overline{p}pp$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
2026 ± 5	[24] AZOOZ	83	HYBR	−	4 $\overline{p}p \rightarrow \overline{p}n3\pi$
20 ± 11	[24] AZOOZ	83	HYBR	−	4 $\overline{p}p \rightarrow \overline{p}n3\pi$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
2080 ± 10	[25] KREYMER	80	STRC	0	13 $\pi^- d \rightarrow p\overline{p}n(n)$
110 ± 20	[25] KREYMER	80	STRC	0	13 $\pi^- d \rightarrow p\overline{p}n(n)$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2090 ± 20	[26] KREYMER	80	STRC	13 $\pi^- d \rightarrow np\overline{p}\pi^- p$
170 ± 50	[26] KREYMER	80	STRC	13 $\pi^- d \rightarrow np\overline{p}\pi^- p$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
~ 2110	[27] EVANGELISTA	79	OMEG	10,16 $\pi^- p \rightarrow \overline{p}p$
~ 330	[27] EVANGELISTA	79	OMEG	10,16 $\pi^- p \rightarrow \overline{p}p$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2110 ± 10	[28] ROZANSKA	80	SPRK	18 $\pi^- p \rightarrow p\overline{p}n$
190 ± 10	[28] ROZANSKA	80	SPRK	18 $\pi^- p \rightarrow p\overline{p}n$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
2141	[29] DONALD	73	HBC	0	$\overline{p}p$ S channel
14	[29] DONALD	73	HBC	0	$\overline{p}p$ S channel

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2180 ± 10	[30] ROZANSKA	80	SPRK	18 $\pi^- p \rightarrow p\overline{p}n$
270 ± 10	[30] ROZANSKA	80	SPRK	18 $\pi^- p \rightarrow p\overline{p}n$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
2207 ± 13	[31] ALLES-...	67B	HBC	0	5.7 $\overline{p}p$
62 ± 52	[31] 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	[32] BARNES	94	SPEC	0–46 $\overline{p}p \rightarrow \overline{\Lambda}\Lambda$
0.59 ± 0.25	[32] 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	$\overline{p}p \rightarrow \Lambda\overline{\Lambda}$

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 $\overline{p}d \rightarrow N\overline{N}\pi$
< 39	[38] BRAUN	76	DBC	–	5.5 $\overline{p}d \rightarrow N\overline{N}\pi$

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 $\overline{p}p$

[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.
[8] From a phenomenological analysis of ASTERIX data.
[9] Produced backwards.
[10] $I(J^P) = 1(1^-)$ from a mass dependent partial-wave analysis taking solution A.
[11] From reanalysis of data from JASTRZEMBSKI 81.
[12] Not seen by BUSENITZ 89.
[13] 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.
[14] $I = 0$ 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.
[15] 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.
[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. Not seen by CLOUGH 84.
[17] From energy dependence of far backward elastic scattering. Some indication of additional structure.
[18] From energy dependence of far backward elastic scattering. Some indication of additional structure.
[19] Not seen by ALBERI 79 with comparable statistics.
[20] Not seen by ALBERI 79 with comparable statistics.
[21] Seen as a bump in the $\overline{p}p \rightarrow K^0_S K^0_L$ cross section with $J^{PC} = 1^{--}$.
[22] Isospin 1 favored.
[23] Not seen by AJALTOUNI 82, ARMSTRONG 79, BUZZO 97.
[24] Not seen by BIONTA 80, CARROLL 80, HAMILTON 80, BANKS 81, CHUNG 81, BARNETT 83.
[25] Neutron spectator. See also $np\overline{p}\pi^-(p)$ channel following.
[26] Proton spectator. See also $p\overline{p}n(n)$ channel above.
[27] $I(J^P) = 1(3^-)$ from a mass dependent partial-wave analysis taking solution A.
[28] $I(J^P) = 1(3^-)$ from amplitude analysis assuming one-pion exchange.
[29] Seen in final state $\omega\pi^+\pi^-$.
[30] $I(J^P) = 0(2^+)$ from amplitude analysis assuming one-pion exchange.
[31] ALLES-BORELLI 67B see neutral mode only $\pi^+\pi^-\pi^0$.
[32] Supersedes CARBONELL 93.
[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 $\overline{p}p \rightarrow \pi\pi$.
[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

BUZZO	97	ZPHY C76 475	A. Buzzo, Drijard+ (JETSET Collab.)
CHIBA	97	PR D55 40	+Doi, Fujitani+ (FUKI, INUS, KEK, SANG, OSAK, TMU)
DALKAROV	97	PL B392 229	+Kolybasov, Shapiro+ (LEBD)
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)
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+)