$K^*(892)$

$I(J^P) = \frac{1}{2}(1^-)$

$K^*(892)$ MASS

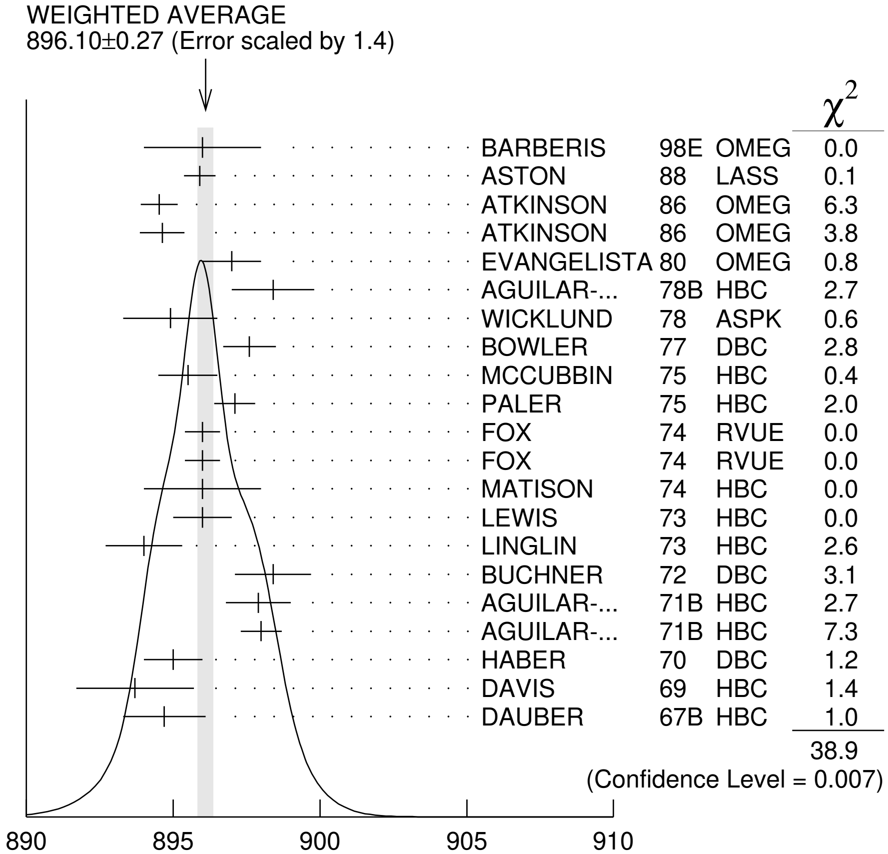
CHARGED ONLY

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
891.66±0.26 OUR AVERAGE						
892.6 ±0.5	5840	BAUBILLIER	84B	HBC	−	8.25 $K^- p \to \overline{K}^0 \pi^- p$
888 ±3		NAPIER	84	SPEC	+	200 $\pi^- p \to 2K^0_S X$
891 ±1		NAPIER	84	SPEC	−	200 $\pi^- p \to 2K^0_S X$
891.7 ±2.1	3700	BARTH	83	HBC	+	70 $K^+ p \to K^0 \pi^+ X$
891 ±1	4100	TOAFF	81	HBC	−	6.5 $K^- p \to \overline{K}^0 \pi^- p$
892.8 ±1.6		AJINENKO	80	HBC	+	32 $K^+ p \to K^0 \pi^+ X$
890.7 ±0.9	1800	AGUILAR-...	78B	HBC	±	0.76 $\overline{p} p \to K^\mp K^0_S \pi^\pm$
886.6 ±2.4	1225	BALAND	78	HBC	±	12 $\overline{p} p \to (K\pi)^\pm X$
891.7 ±0.6	6706	COOPER	78	HBC	±	0.76 $\overline{p} p \to (K\pi)^\pm X$
891.9 ±0.7	9000	[2] PALER	75	HBC	−	14.3 $K^- p \to (K\pi)^- X$
892.2 ±1.5	4404	AGUILAR-...	71B	HBC	−	3.9,4.6 $K^- p \to (K\pi)^- p$
891 ±2	1000	CRENNELL	69D	DBC	−	3.9 $K^- N \to K^0 \pi^- X$
890 ±3.0	720	BARLOW	67	HBC	±	1.2 $\overline{p} p \to (K^0 \pi)^\pm K^\mp$
889 ±3.0	600	BARLOW	67	HBC	±	1.2 $\overline{p} p \to (K^0 \pi)^\pm K \pi$
891 ±2.3	620	[3] DEBAERE	67B	HBC	+	3.5 $K^+ p \to K^0 \pi^+ p$
891.0 ±1.2	1700	[4] WOJCICKI	64	HBC	−	1.7 $K^- p \to \overline{K}^0 \pi^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
893.5 ±1.1	27k	[1] ABELE	99D	CBAR	±	0.0 $\overline{p} p \to K^+ K^- \pi^0$
890.4 ±0.2 ±0.5	79709±801	[5] BIRD	89	LASS	−	11 $K^- p \to \overline{K}^0 \pi^- p$
890.0 ±2.3	800	[3,4] CLELAND	82	SPEC	+	30 $K^+ p \to K^0_S \pi^+ p$
896.0 ±1.1	3200	[3,4] CLELAND	82	SPEC	+	50 $K^+ p \to K^0_S \pi^+ p$
893 ±1	3600	[3,4] CLELAND	82	SPEC	−	50 $K^+ p \to K^0_S \pi^- p$
896.0 ±1.9	380	DELFOSSE	81	SPEC	+	50 $K^\pm p \to K^\pm \pi^0 p$
886.0 ±2.3	187	DELFOSSE	81	SPEC	−	50 $K^\pm p \to K^\pm \pi^0 p$
894.2 ±2.0	765	[3] CLARK	73	HBC	−	3.13 $K^- p \to \overline{K}^0 \pi^- p$
894.3 ±1.5	1150	[3,4] CLARK	73	HBC	−	3.3 $K^- p \to \overline{K}^0 \pi^- p$
892.0 ±2.6	341	[3] SCHWEING...	68	HBC	−	5.5 $K^- p \to \overline{K}^0 \pi^- p$

[1] K-matrix pole.

NEUTRAL ONLY

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
896.10±0.27 OUR AVERAGE		Error includes scale factor of 1.4. See the ideogram below.				
896 ±2		BARBERIS	98E	OMEG		450 $pp \to p_f p_s K^* \overline{K}^*$
895.9 ±0.5 ±0.2		ASTON	88	LASS	0	11 $K^- p \to K^- \pi^+ n$
894.52±0.63	25k	[2] ATKINSON	86	OMEG		20–70 γp
894.63±0.76	20k	[2] ATKINSON	86	OMEG		20–70 γp
897 ±1	28k	EVANGELISTA	80	OMEG	0	10 $\pi^- p \to K^+ \pi^- (\Lambda, \Sigma)$
898.4 ±1.4	1180	AGUILAR-...	78B	HBC	0	0.76 $\overline{p} p \to K^\mp K^0_S \pi^\pm$
894.9 ±1.6		WICKLUND	78	ASPK	0	3,4,6 $K^\pm N \to (K\pi)^0 N$
897.6 ±0.9		BOWLER	77	DBC	0	5.4 $K^+ d \to K^+ \pi^- pp$
895.5 ±1.0	3600	MCCUBBIN	75	HBC	0	3.6 $K^- p \to K^- \pi^+ n$
897.1 ±0.7	22k	[2] PALER	75	HBC	0	14.3 $K^- p \to (K\pi)^0 X$
896.0 ±0.6	10k	FOX	74	RVUE	0	2 $K^- p \to K^- \pi^+ n$
896.0 ±0.6		FOX	74	RVUE	0	2 $K^+ n \to K^+ \pi^- p$
896 ±2		[6] MATISON	74	HBC	0	12 $K^+ p \to K^+ \pi^- \Delta$
896 ±1	3186	LEWIS	73	HBC	0	2.1–2.7 $K^+ p \to K \pi \pi p$
894.0 ±1.3		[6] LINGLIN	73	HBC	0	2–13 $K^+ p \to K^+ \pi^- \pi^+ p$
898.4 ±1.3	1700	[3] BUCHNER	72	DBC	0	4.6 $K^+ n \to K^+ \pi^- p$
897.9 ±1.1	2934	[3] AGUILAR-...	71B	HBC	0	3.9,4.6 $K^- p \to K^- \pi^+ n$
898.0 ±0.7	5362	[3] AGUILAR-...	71B	HBC	0	3.9,4.6 $K^- p \to K^- \pi^+ \pi^- p$
895 ±1	4300	[4] HABER	70	DBC	0	3 $K^- N \to K^- \pi^+ X$
893.7 ±2.0	10k	DAVIS	69	HBC	0	12 $K^+ p \to K^+ \pi^- \pi^+ p$
894.7 ±1.4	1040	[3] DAUBER	67B	HBC	0	2.0 $K^- p \to K^- \pi^+ \pi^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
900.7 ±1.1	5900	BARTH	83	HBC	0	70 $K^+ p \to K^+ \pi^- X$



$K^*(892)^0$ mass (MeV)

[2] Inclusive reaction. Complicated background and phase-space effects.
[3] Mass errors enlarged by us to $\Gamma/\sqrt{N}$. See note.
[4] Number of events in peak reevaluated by us.
[5] From a partial wave amplitude analysis.
[6] From pole extrapolation.

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$m_{K^*(892)^0} - m_{K^*(892)^\pm}$

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
6.7±1.2 OUR AVERAGE						
7.7±1.7	2980	AGUILAR-...	78B	HBC	±0	0.76 $\overline{p}p \rightarrow K^\mp K^0_S \pi^\pm$
5.7±1.7	7338	AGUILAR-...	71B	HBC	−0	3.9,4.6 $K^- p$
6.3±4.1	283	[7] BARASH	67B	HBC		0.0 $\overline{p}p$

[7] Number of events in peak reevaluated by us.

$K^*(892)$ RANGE PARAMETER

All from partial wave amplitude analyses.

VALUE (GeV^{-1})	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
3.4±0.7	ASTON	88	LASS	0	11 $K^- p \to K^- \pi^+ n$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
12.1±3.2±3.0	BIRD	89	LASS	−	11 $K^- p \to \overline{K}^0 \pi^- p$

$K^*(892)$ WIDTH

CHARGED ONLY

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
50.8±0.9 OUR FIT						
50.8±0.9 OUR AVERAGE						
49 ±2	5840	BAUBILLIER	84B	HBC	−	8.25 $K^- p \to \overline{K}^0 \pi^- p$
56 ±4		NAPIER	84	SPEC	−	200 $\pi^- p \to 2K^0_S X$
51 ±2	4100	TOAFF	81	HBC	−	6.5 $K^- p \to \overline{K}^0 \pi^- p$
50.5±5.6		AJINENKO	80	HBC	+	32 $K^+ p \to K^0 \pi^+ X$
45.8±3.6	1800	AGUILAR-...	78B	HBC	±	0.76 $\overline{p} p \to K^\mp K^0_S \pi^\pm$
52.0±2.5	6706	[9] COOPER	78	HBC	±	0.76 $\overline{p} p \to (K\pi)^\pm X$
52.1±2.2	9000	[10] PALER	75	HBC	−	14.3 $K^- p \to (K\pi)^- X$
46.3±6.7	765	[9] CLARK	73	HBC	−	3.13 $K^- p \to \overline{K}^0 \pi^- p$
48.2±5.7	1150	[9,11] CLARK	73	HBC	−	3.3 $K^- p \to \overline{K}^0 \pi^- p$
54.3±3.3	4404	[9] AGUILAR-...	71B	HBC	−	3.9,4.6 $K^- p \to (K\pi)^- p$
46 ±5	1700	[9,11] WOJCICKI	64	HBC	−	1.7 $K^- p \to \overline{K}^0 \pi^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
54.8±1.7	27k	[8] ABELE	99D	CBAR	±	0.0 $\overline{p} p \to K^+ K^- \pi^0$
45.2±1 ±2	79709±801	[12] BIRD	89	LASS	−	11 $K^- p \to \overline{K}^0 \pi^- p$
42.8±7.1	3700	BARTH	83	HBC	+	70 $K^+ p \to K^0 \pi^+ X$
64.0±9.2	800	[9,11] CLELAND	82	SPEC	+	30 $K^+ p \to K^0_S \pi^+ p$
62.0±4.4	3200	[9,11] CLELAND	82	SPEC	+	50 $K^+ p \to K^0_S \pi^+ p$
55 ±4	3600	[9,11] CLELAND	82	SPEC	−	50 $K^+ p \to K^0_S \pi^- p$
62.6±3.8	380	DELFOSSE	81	SPEC	+	50 $K^\pm p \to K^\pm \pi^0 p$
50.5±3.9	187	DELFOSSE	81	SPEC	−	50 $K^\pm p \to K^\pm \pi^0 p$

[8] K-matrix pole.

NEUTRAL ONLY

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
50.7±0.6 OUR FIT Error includes scale factor of 1.1.						
50.7±0.6 OUR AVERAGE Error includes scale factor of 1.1.						
54 ±3		BARBERIS	98E	OMEG		450 $pp \to p_f p_s K^* \overline{K}^*$
50.8±0.8±0.9		ASTON	88	LASS	0	11 $K^- p \to K^- \pi^+ n$
46.5±4.3	5900	BARTH	83	HBC	0	70 $K^+ p \to K^+ \pi^- X$
54 ±2	28k	EVANGELISTA	80	OMEG	0	10 $\pi^- p \to K^+ \pi^- (\Lambda, \Sigma)$
45.9±4.8	1180	AGUILAR-...	78B	HBC	0	0.76 $\overline{p} p \to K^\mp K^0_S \pi^\pm$
51.2±1.7		WICKLUND	78	ASPK	0	3,4,6 $K^\pm N \to (K\pi)^0 N$
48.9±2.5		BOWLER	77	DBC	0	5.4 $K^+ d \to K^+ \pi^- pp$
48 $^{+3}_{-2}$	3600	MCCUBBIN	75	HBC	0	3.6 $K^- p \to K^- \pi^+ n$
50.6±2.5	22k	[10] PALER	75	HBC	0	14.3 $K^- p \to (K\pi)^0 X$
47 ±2	10k	FOX	74	RVUE	0	2 $K^- p \to K^- \pi^+ n$
51 ±2		FOX	74	RVUE	0	2 $K^+ n \to K^+ \pi^- p$
46.0±3.3	3186	[9] LEWIS	73	HBC	0	2.1–2.7 $K^+ p \to K\pi\pi p$
51.4±5.0	1700	[9] BUCHNER	72	DBC	0	4.6 $K^+ n \to K^+ \pi^- p$
55.8$^{+4.2}_{-3.4}$	2934	[9] AGUILAR-...	71B	HBC	0	3.9,4.6 $K^- p \to K^- \pi^+ n$
48.5±2.7	5362	AGUILAR-...	71B	HBC	0	3.9,4.6 $K^- p \to K^- \pi^+ \pi^- p$
54.0±3.3	4300	[9,11] HABER	70	DBC	0	3 $K^- N \to K^- \pi^+ X$
53.2±2.1	10k	[9] DAVIS	69	HBC	0	12 $K^+ p \to K^+ \pi^- \pi^+ p$
44 ±5.5	1040	[9] DAUBER	67B	HBC	0	2.0 $K^- p \to K^- \pi^+ \pi^- p$

[9] Width errors enlarged by us to $4 \times \Gamma/\sqrt{N}$; see note.
[10] Inclusive reaction. Complicated background and phase-space effects.
[11] Number of events in peak reevaluated by us.
[12] From a partial wave amplitude analysis.

$K^*(892)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)	Confidence level
Γ_1	$K\pi$	$\sim$ 100 %	
Γ_2	$(K\pi)^\pm$	(99.901±0.009) %	
Γ_3	$(K\pi)^0$	(99.770±0.020) %	
Γ_4	$K^0\gamma$	(2.30 ±0.20) $\times 10^{-3}$	
Γ_5	$K^\pm\gamma$	(9.9 ±0.9) $\times 10^{-4}$	
Γ_6	$K\pi\pi$	< 7 $\times 10^{-4}$	95%

CONSTRAINED FIT INFORMATION

An overall fit to the total width and a partial width uses 13 measurements and one constraint to determine 3 parameters. The overall fit has a $\chi^2 = 7.8$ for 11 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients $\left\langle \delta p_i \delta p_j \right\rangle / (\delta p_i \cdot \delta p_j)$, in percent, from the fit to parameters p_i, including the branching fractions, $x_i \equiv \Gamma_i/\Gamma_{\text{total}}$. The fit constrains the x_i whose labels appear in this array to sum to one.

$$\begin{array}{c|cc} x_5 & -100 & \\ \Gamma & 19 & -19 \\ \hline & x_2 & x_5 \end{array}$$

	Mode	Rate (MeV)
Γ_2	$(K\pi)^\pm$	50.7 $\pm$0.9
Γ_5	$K^\pm\gamma$	0.050$\pm$0.005

CONSTRAINED FIT INFORMATION

An overall fit to the total width and a partial width uses 19 measurements and one constraint to determine 3 parameters. The overall fit has a $\chi^2 = 19.7$ for 17 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients $\left\langle \delta p_i \delta p_j \right\rangle / (\delta p_i \cdot \delta p_j)$, in percent, from the fit to parameters p_i, including the branching fractions, $x_i \equiv \Gamma_i/\Gamma_{\text{total}}$. The fit constrains the x_i whose labels appear in this array to sum to one.

$$\begin{array}{c|cc} x_4 & -100 & \\ \Gamma & 14 & -14 \\ \hline & x_3 & x_4 \end{array}$$

	Mode	Rate (MeV)	Scale factor
Γ_3	$(K\pi)^0$	50.6 $\pm$0.6	1.1
Γ_4	$K^0\gamma$	0.117$\pm$0.010	

$K^*(892)$ PARTIAL WIDTHS

$\Gamma(K^0\gamma)$ Γ_4

VALUE (keV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
116 ±10 OUR FIT						
116.5± 9.9	584	CARLSMITH	86	SPEC	0	$K^0_L A \rightarrow K^0_S \pi^0 A$

$\Gamma(K^{\pm}\gamma)$ — Γ_5

VALUE (keV)	DOCUMENT ID		TECN	CHG	COMMENT
50± 5 OUR FIT					
50± 5 OUR AVERAGE					
48±11	BERG	83	SPEC	−	156 $K^- A \to \overline{K}\pi A$
51± 5	CHANDLEE	83	SPEC	+	200 $K^+ A \to K\pi A$

$K^*(892)$ BRANCHING RATIOS

$\Gamma(K^0\gamma)/\Gamma_{total}$ — Γ_4/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	CHG	COMMENT
2.30±0.20 OUR FIT					
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.5 ±0.7	CARITHERS	75B	CNTR	0	8–16 $\overline{K}^0 A$

$\Gamma(K^{\pm}\gamma)/\Gamma_{total}$ — Γ_5/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	CHG	COMMENT
0.99±0.09 OUR FIT						
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<1.6	95	BEMPORAD	73	CNTR	+	10–16 $K^+ A$

$\Gamma(K\pi\pi)/\Gamma((K\pi)^{\pm})$ — Γ_6/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	CHG	COMMENT
<0.0007	95	JONGEJANS	78	HBC		4 $K^- p \to p\overline{K}^0 2\pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.002		WOJCICKI	64	HBC	−	1.7 $K^- p \to \overline{K}^0 \pi^- p$

$K^*(892)$ REFERENCES

ABELE	99D	PL B468 178	A. Abele et al.	(Crystal Barrel Collab.)
BARBERIS	98E	PL B436 204	D. Barberis et al.	(Omega Expt.)
BIRD	89	SLAC-332	P.F. Bird	(SLAC)
ASTON	88	NP B296 493	D. Aston et al.	(SLAC, NAGO, CINC, INUS)
ATKINSON	86	ZPHY C30 521	M. Atkinson et al.	(BONN, CERN, GLAS+)
CARLSMITH	86	PRL 56 18	D. Carlsmith et al.	(EFI, SACL)
BAUBILLIER	84B	ZPHY C26 37	M. Baubillier et al.	(BIRM, CERN, GLAS+)
NAPIER	84	PL 149B 514	A. Napier et al.	(TUFTS, ARIZ, FNAL, FLOR+)
BARTH	83	NP B223 296	M. Barth et al.	(BRUX, CERN, GENO, MONS+)
BERG	83	Thesis UMI 83-21652	D.M. Berg	(ROCH)
CHANDLEE	83	PRL 51 168	C. Chandlee et al.	(ROCH, FNAL, MINN)
CLELAND	82	NP B208 189	W.E. Cleland et al.	(DURH, GEVA, LAUS+)
DELFOSSE	81	NP B183 349	A. Delfosse et al.	(GEVA, LAUS)
TOAFF	81	PR D23 1500	S. Toaff et al.	(ANL, KANS)
AJINENKO	80	ZPHY C5 177	I.V. Ajinenko et al.	(SERP, BRUX, MONS+)
EVANGELISTA	80	NP B165 383	C. Evangelista et al.	(BARI, BONN, CERN+)
AGUILAR-...	78B	NP B141 101	M. Aguilar-Benitez et al.	(MADR, TATA+)
BALAND	78	NP B140 220	J.F. Baland et al.	(MONS, BELG, CERN+)
COOPER	78	NP B136 365	A.M. Cooper et al.	(TATA, CERN, CDEF+)
JONGEJANS	78	NP B139 383	B. Jongejans et al.	(ZEEM, CERN, NIJM+)
WICKLUND	78	PR D17 1197	A.B. Wicklund et al.	(ANL)
BOWLER	77	NP B126 31	M.G. Bowler et al.	(OXF)
CARITHERS	75B	PRL 35 349	W.C.J. Carithers et al.	(ROCH, MCGI)
MCCUBBIN	75	NP B86 13	N.A. McCubbin, L. Lyons	(OXF)

PALER	75	NP B96 1	K. Paler *et al.*	(RHEL, SACL, EPOL)
FOX	74	NP B80 403	G.C. Fox, M.L. Griss	(CIT)
MATISON	74	PR D9 1872	M.J. Matison *et al.*	(LBL)
BEMPORAD	73	NP B51 1	C. Bemporad *et al.*	(CERN, ETH, LOIC)
CLARK	73	NP B54 432	A.G. Clark, L. Lyons, D. Radojicic	(OXF)
LEWIS	73	NP B60 283	P.H. Lewis *et al.*	(LOWC, LOIC, CDEF)
LINGLIN	73	NP B55 408	D. Linglin	(CERN)
BUCHNER	72	NP B45 333	K. Buchner *et al.*	(MPIM, CERN, BRUX)
AGUILAR-...	71B	PR D4 2583	M. Aguilar-Benitez, R.L. Eisner, J.B. Kinson	(BNL)
HABER	70	NP B17 289	B. Haber *et al.*	(REHO, SACL, BGNA, EPOL)
CRENNELL	69D	PRL 22 487	D.J. Crennell *et al.*	(BNL)
DAVIS	69	PRL 23 1071	P.J. Davis *et al.*	(LRL)
SCHWEING...	68	PR 166 1317	F. Schweingruber *et al.*	(ANL, NWES)
BARASH	67B	PR 156 1399	N. Barash *et al.*	(COLU)
BARLOW	67	NC 50A 701	J. Barlow *et al.*	(CERN, CDEF, IRAD, LIVP)
DAUBER	67B	PR 153 1403	P.M. Dauber *et al.*	(UCLA)
DEBAERE	67B	NC 51A 401	W. de Baere *et al.*	(BRUX, CERN)
WOJCICKI	64	PR 135B 484	S.G. Wojcicki	(LRL)

OTHER RELATED PAPERS

BENAYOUN	99B	PR D59 114027	M. Benayoun *et al.*	
KAMAL	92	PL B284 421	A.N. Kamal, Q.P. Xu	(ALBE)
NAPIER	84	PL 149B 514	A. Napier *et al.*	(TUFTS, ARIZ, FNAL, FLOR+)
CLELAND	82	NP B208 189	W.E. Cleland *et al.*	(DURH, GEVA, LAUS+)
ALEXANDER	62	PRL 8 447	G. Alexander *et al.*	(LRL)
ALSTON	61	PRL 6 300	M.H. Alston *et al.*	(LRL)