$K^*(892)$

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

$K^*(892)$ MASS

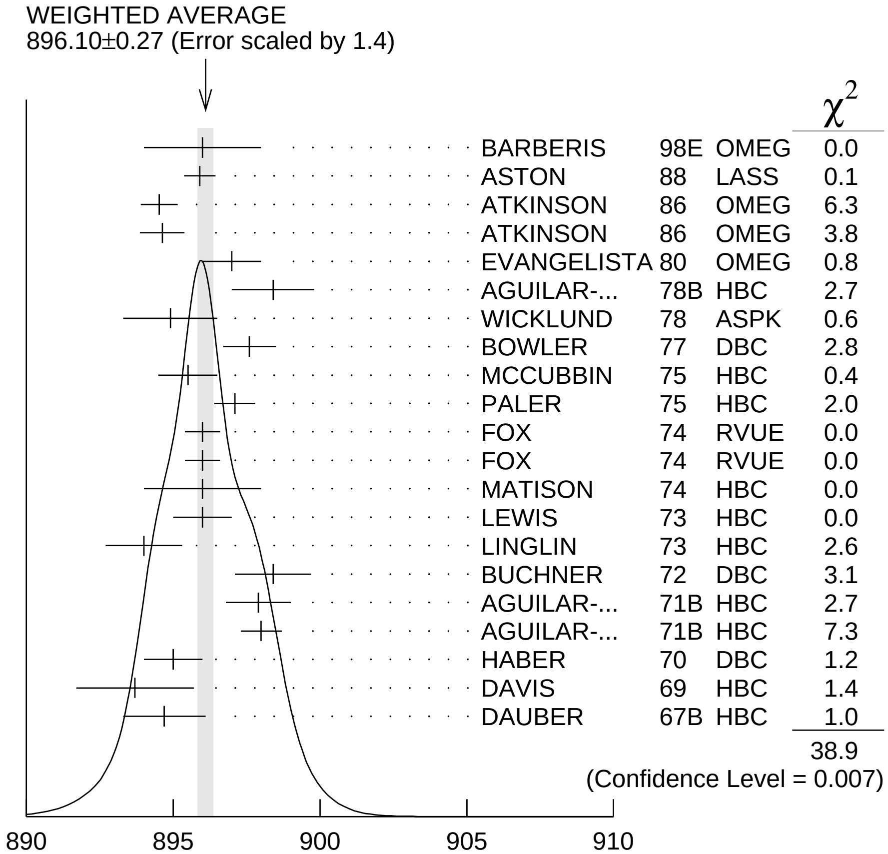
CHARGED ONLY

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 $pp \rightarrow p_f p_s K^* \overline{K}^*$
895.9 ±0.5 ±0.2		ASTON	88	LASS	0	11 $K^- p \rightarrow K^- \pi^+ n$
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 $\pi^- p \rightarrow K^+ \pi^- (\Lambda, \Sigma)$
898.4 ±1.4	1180	AGUILAR-...	78B	HBC	0	0.76 $\overline{p} p \rightarrow K^\mp K^0_S \pi^\pm$
894.9 ±1.6		WICKLUND	78	ASPK	0	3,4,6 $K^\pm N \rightarrow (K\pi)^0 N$
897.6 ±0.9		BOWLER	77	DBC	0	5.4 $K^+ d \rightarrow K^+ \pi^- pp$
895.5 ±1.0	3600	MCCUBBIN	75	HBC	0	3.6 $K^- p \rightarrow K^- \pi^+ n$
897.1 ±0.7	22k	[2] PALER	75	HBC	0	14.3 $K^- p \rightarrow (K\pi)^0 X$
896.0 ±0.6	10k	FOX	74	RVUE	0	2 $K^- p \rightarrow K^- \pi^+ n$
896.0 ±0.6		FOX	74	RVUE	0	2 $K^+ n \rightarrow K^+ \pi^- p$
896 ±2		[6] MATISON	74	HBC	0	12 $K^+ p \rightarrow K^+ \pi^- \Delta$
896 ±1	3186	LEWIS	73	HBC	0	2.1–2.7 $K^+ p \rightarrow K\pi\pi p$
894.0 ±1.3		[6] LINGLIN	73	HBC	0	2–13 $K^+ p \rightarrow K^+ \pi^- \pi^+ p$
898.4 ±1.3	1700	[3] BUCHNER	72	DBC	0	4.6 $K^+ n \rightarrow K^+ \pi^- p$
897.9 ±1.1	2934	[3] AGUILAR-...	71B	HBC	0	3.9,4.6 $K^- p \rightarrow K^- \pi^+ n$
898.0 ±0.7	5362	[3] AGUILAR-...	71B	HBC	0	3.9,4.6 $K^- p \rightarrow K^- \pi^+ \pi^- p$
895 ±1	4300	[4] HABER	70	DBC	0	3 $K^- N \rightarrow K^- \pi^+ X$
893.7 ±2.0	10k	DAVIS	69	HBC	0	12 $K^+ p \rightarrow K^+ \pi^- \pi^+ p$
894.7 ±1.4	1040	[3] DAUBER	67B	HBC	0	2.0 $K^- p \rightarrow K^- \pi^+ \pi^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
900.7 ±1.1	5900	BARTH	83	HBC	0	70 $K^+ p \rightarrow K^+ \pi^- X$



$K^*(892)^0$ 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.

A REVIEW GOES HERE – Check our WWW List of Reviews

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

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 $p p \to p_f p_s K^* \overline{K}^*$
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 $K^+ d \to K^+ \pi^- p p$
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 $\pm$10 OUR FIT						
116.5$\pm$ 9.9	584	CARLSMITH	86	SPEC	0	$K^0_L A \to K^0_S \pi^0 A$

$\Gamma(K^{\pm}\gamma)$ 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)