NODE=B097

$Z_1(1900)$ $3/2^+$

$I(J^P) = 1(\frac{3}{2}^+)$ Status: *

OMITTED FROM SUMMARY TABLE

This effect is strongly associated with the ΔK threshold. NODE=B097

$Z_1(1900)$ MASS

NODE=B097M

VALUE (MeV)	DOCUMENT ID		TECN	CHG	COMMENT	NODE=B097M
1931	NAKAJIMA	82B	PWA		$K N$ 0.2–1.6 GeV/c	
1880	ALBROW	71B	IPWA	++	Sol. γ	
1890	[1] KATO	71	IPWA		Fit Breit-Wigner (sol. 1)	
2040	[1] KATO	71	IPWA		Fit Breit-Wigner (sol. 2)	OCCUR=2
1932	[2] AYED	70B	IPWA		P_{13}, sol.I	
1899	[2] AYED	70B	IPWA		P_{13}, sol.II	OCCUR=2
2030	[2] AYED	70B	IPWA		S_{11},sol.III	OCCUR=3
1830	[3] BARNETT	70B	IPWA		P_{13} (sol. 3)	
1900±10	COOL	70	CNTR	++	$K^+ p$ total σ	

$Z_1(1900)$ WIDTH

NODE=B097W

VALUE (MeV)	DOCUMENT ID		TECN	CHG	COMMENT	NODE=B097W
347	NAKAJIMA	82B	PWA		$K N$ 0.2–1.6 GeV/c	
190	ALBROW	71B	IPWA	++	Sol. γ	
280	[1] KATO	71	IPWA		Fit Breit-Wigner (sol. 1)	
260	[1] KATO	71	IPWA		Fit Breit-Wigner (sol. 2)	OCCUR=2
520	[2] AYED	70B	IPWA		$K^+ p$	
397	[2] AYED	70B	IPWA		$K^+ p$	OCCUR=2
557	[2] AYED	70B	IPWA		$K^+ p$	OCCUR=3
120	[3] BARNETT	70B	IPWA		P_{13} (sol. 3)	
240	COOL	70	CNTR	++	$K^\pm$ total	

$Z_1(1900)$ POLE POSITION

NODE=B097215

REAL PART

NODE=B097RE

VALUE	DOCUMENT ID		TECN	COMMENT	NODE=B097RE
1780	[4] ARNDT	85B	DPWA	$K^+ p \to K^+ p$	
1796	ARNDT	78	DPWA	$K^+ p$	
1787	[5] ARNDT	74	DPWA	$K^+ p \to K^+ p$	

−IMAGINARY PART

NODE=B097IM

VALUE	DOCUMENT ID		TECN	COMMENT	NODE=B097IM
140	[4] ARNDT	85B	DPWA	$K^+ p \to K^+ p$	
101	ARNDT	78	DPWA	$K^+ p$	
100	[5] ARNDT	74	DPWA	$K^+ p \to K^+ p$	

$Z_1(1900)$ DECAY MODES

NODE=B097220;NODE=B097

	Mode	
Γ_1	$N K$	DESIG=1
Γ_2	$\Delta(1232) K$	DESIG=2

$Z_1(1900)$ BRANCHING RATIOS

NODE=B097225

$\Gamma(NK)/\Gamma_{total}$ — Γ_1/Γ

NODE=B097R1
NODE=B097R1

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
0.24	NAKAJIMA	82B	PWA		KN 0.2–1.6 GeV/c
0.15	ALBROW	71B	IPWA	++	Sol. γ
0.22	[1] KATO	71	IPWA		Fit Breit-Wigner (sol. 1)
0.27	[1] KATO	71	IPWA		Fit Breit-Wigner (sol. 2)
0.16	[2] AYED	70B	IPWA		
0.20	[2] AYED	70B	IPWA		
0.17	[2] AYED	70B	IPWA		
0.12	[3] BARNETT	70B	IPWA		P_{13} (sol. 3)
0.12 (assuming $J = 3/2$)	COOL	70	CNTR	++	K^+p total σ
<0.10	CARTER	67	THEO		Dispersion relation

OCCUR=2
OCCUR=2
OCCUR=3

$\Gamma(\Delta(1232)K)/\Gamma_{total}$ — Γ_2/Γ

NODE=B097R2
NODE=B097R2

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
no evidence, speed has minim.	GRIFFITHS	72	HBC		K^+p 0.9–1.5 GeV/c
main inelastic decay	BLAND	67	HBC	++	

$Z_1(1900)$ FOOTNOTES

NODE=B097

[1] KATO 71 estimate resonance parameters; updated phase shifts published in MILLER 72. NODE=B097;LINKAGE=C

[2] Three solutions in order of decreasing significance. Though AYED 70B give parameters, they conclude the resonant interpretation doubtful. NODE=B097;LINKAGE=A

[3] Resonance signal barely above background due to the large errors in the amplitudes resulting from the analysis. NODE=B097;LINKAGE=B

[4] ARNDT 85B believe that their 1978 result may be more accurate. NODE=B097;LINKAGE=E

[5] Superseded by ARNDT 78. NODE=B097;LINKAGE=D

$Z_1(1900)$ REFERENCES

NODE=B097

See also our 1982 edition Physics Letters **111B** 1 (1982) for a large number of other references to theoretical and experimental work in this region. NODE=B097

ARNDT	85B	PR D31 2230	R.A. Arndt, L.D. Roper	(VPI)	REFID=31582
NAKAJIMA	82B	PL 112B 80	K. Nakajima *et al.*	(KEK) IJP	REFID=31534
ARNDT	78	PR D18 3278	R.A. Arndt, L.D. Roper, P.H. Steinberg	(VPI+)	REFID=31598
ARNDT	74	PRL 33 987	R.A. Arndt *et al.*	(VPI, UMD) IJP	REFID=31597
GRIFFITHS	72	NP B38 365	F. Griffiths *et al.*	(BGNA, GLAS, ROMA+) IJP	REFID=31595
MILLER	72	NP B37 401	R.C. Miller *et al.*	(ANL, CMU, NWES) IJP	REFID=31596
ALBROW	71B	NP B30 273	M.G. Albrow *et al.*	(CERN) IJP	REFID=31590
Also		Duke Conf. 375	F.C. Erne, J.C. Sens, F. Wagner	(CERN) IJP	REFID=31661
Hyperon Resonances, 1970					
KATO	71	Moriond	S. Kato *et al.*	(ANL, NWES) IJP	REFID=31592
Also		Duke Conf. 367	A. Yokosawa	(ANL) IJP	REFID=31593
Hyperon Resonances, 1970					
Also		PRL 24 615	S. Kato *et al.*	(ANL, NWES) IJP	REFID=31594
AYED	70B	PL 32B 404	R. Ayed *et al.*	(SACL) IJP	REFID=31585
BARNETT	70B	Maryland RPT 70-101	B. Barnett *et al.*	(UMD) IJP	REFID=31586
Also		Duke Conf. 443	B. Barnett *et al.*	(UMD) IJP	REFID=31587
Hyperon Resonances, 1970					
COOL	70	PR D1 1887	R.L. Cool *et al.*	(BNL) I	REFID=31529
Also		PRL 17 102	R.L. Cool *et al.*	(BNL)	REFID=31570
BLAND	67	PRL 18 1077	R.W. Bland *et al.*	(LRL)	REFID=31583
CARTER	67	PRL 18 801	A.A. Carter	(CAVE)	REFID=31567

REVIEW TALKS AND PAPERS

NODE=B097;CLUMP=G

OADES	81	Rome Conf. 53	G.C. Oades	(AARH)	REFID=31543
Low and Intermediate Energy KN Physics.					
KELLY	78	HUPD-7813 44	R.L. Kelly	(LBL)	REFID=31680
Meeting on Exotic Resonances, Hiroshima.					
MARTIN	76	Oxford Conf. 409	B.R. Martin	(LOUC)	REFID=31679
Rapporteur talk.					
KELLY	75	ANL-HEP-CP-75-58	R.L. Kelly	(LBL)	REFID=31677
Review talk in baryon session.					
URBAN	75	PL 60B 77	M. Urban	(LBL)	REFID=31678
CUTKOSKY	74	London Conf. 2 54	R.E. Cutkosky	(CMU)	REFID=31676
DOWELL	73	Purdue Conf. 157	J.D. Dowell	(BIRM)	REFID=31675
DOWELL	72	NAL Review	J.D. Dowell	(BIRM)	REFID=31673
Review talk in baryon session.					
LOVELACE	72	NAL Review	C. Lovelace	(RUTG)	REFID=31674
Rapporteur talk.					
GOLDHABER	70	Duke Conf. 407	Goldhaber	(LRL)	REFID=31672;ERROR=1
Reviewer.					
LEVI-SETTI	69B	Lund Conf. 341	R. Levi-Setti	(CHIC)	REFID=31671
Rapporteur.					