$N(2090)$ S_{11}

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

OMITTED FROM SUMMARY TABLE

Any structure in the S_{11} wave above 1800 MeV is listed here. A few early results that are now obsolete have been omitted.

$N(2090)$ BREIT-WIGNER MASS

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
≈ 2090 OUR ESTIMATE				
1928 ± 59	MANLEY	92	IPWA	$\pi N \to \pi N$ & $N\pi\pi$
2180 ± 80	CUTKOSKY	80	IPWA	$\pi N \to \pi N$
1880 ± 20	HOEHLER	79	IPWA	$\pi N \to \pi N$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1897 \pm 50 {}^{+30}_{-2}$	PLOETZKE	98	SPEC	$\gamma p \to p\eta'(958)$

$N(2090)$ BREIT-WIGNER WIDTH

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
414 ± 157	MANLEY	92	IPWA	$\pi N \to \pi N$ & $N\pi\pi$
350 ± 100	CUTKOSKY	80	IPWA	$\pi N \to \pi N$
95 ± 30	HOEHLER	79	IPWA	$\pi N \to \pi N$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$396 \pm 155 {}^{+35}_{-45}$	PLOETZKE	98	SPEC	$\gamma p \to p\eta'(958)$

$N(2090)$ POLE POSITION

REAL PART

VALUE (MeV)		DOCUMENT ID		TECN	COMMENT
2150 ± 70		CUTKOSKY	80	IPWA	$\pi N \to \pi N$
1937 or 1949	[1]	LONGACRE	78	IPWA	$\pi N \to N\pi\pi$

−2×IMAGINARY PART

VALUE (MeV)		DOCUMENT ID		TECN	COMMENT
350 ± 100		CUTKOSKY	80	IPWA	$\pi N \to \pi N$
139 or 131	[1]	LONGACRE	78	IPWA	$\pi N \to N\pi\pi$

$N(2090)$ ELASTIC POLE RESIDUE

MODULUS $|r|$

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
40 ± 20	CUTKOSKY	80	IPWA	$\pi N \to \pi N$

PHASE θ

VALUE (°)	DOCUMENT ID		TECN	COMMENT
0 ± 90	CUTKOSKY	80	IPWA	$\pi N \to \pi N$

$N(2090)$ DECAY MODES

	Mode
Γ_1	$N\pi$
Γ_2	ΛK
Γ_3	$N\pi\pi$

$N(2090)$ BRANCHING RATIOS

$\Gamma(N\pi)/\Gamma_{total}$ — **Γ_1/Γ**

VALUE	DOCUMENT ID		TECN	COMMENT
0.10±0.10	MANLEY	92	IPWA	$\pi N \to \pi N$ & $N\pi\pi$
0.18±0.08	CUTKOSKY	80	IPWA	$\pi N \to \pi N$
0.09±0.05	HOEHLER	79	IPWA	$\pi N \to \pi N$

$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{total}$ in $N\pi \to N(2090) \to \Lambda K$ — **$(\Gamma_1\Gamma_2)^{1/2}/\Gamma$**

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	SAXON	80	DPWA	$\pi^- p \to \Lambda K^0$

$N(2090)$ FOOTNOTES

[1] LONGACRE 78 values are from a search for poles in the unitarized T-matrix. The first (second) value uses, in addition to $\pi N \to N\pi\pi$ data, elastic amplitudes from a Saclay (CERN) partial-wave analysis.

$N(2090)$ REFERENCES

PLOETZKE	98	PL B444 555	R. Ploetzke *et al.*	(Bonn SAPHIR Collab.)
MANLEY	92	PR D45 4002	D.M. Manley, E.M. Saleski	(KENT) IJP
Also	84	PR D30 904	D.M. Manley *et al.*	(VPI)
CUTKOSKY	80	Toronto Conf. 19	R.E. Cutkosky *et al.*	(CMU, LBL) IJP
Also	79	PR D20 2839	R.E. Cutkosky *et al.*	(CMU, LBL)
SAXON	80	NP B162 522	D.H. Saxon *et al.*	(RHEL, BRIS) IJP
HOEHLER	79	PDAT 12-1	G. Hohler *et al.*	(KARLT) IJP
Also	80	Toronto Conf. 3	R. Koch	(KARLT) IJP
LONGACRE	78	PR D17 1795	R.S. Longacre *et al.*	(LBL, SLAC)