

**$N(2090) S_{11}$** 

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

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**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b><math>\approx 2090</math> OUR ESTIMATE</b>			
1928 $\pm$ 59	MANLEY	92	IPWA $\pi N \rightarrow \pi N$ & $N\pi\pi$
2180 $\pm$ 80	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$
1880 $\pm$ 20	HOEHLER	79	IPWA $\pi N \rightarrow \pi N$

 **$N(2090)$  BREIT-WIGNER WIDTH**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
414 $\pm$ 157	MANLEY	92	IPWA $\pi N \rightarrow \pi N$ & $N\pi\pi$
350 $\pm$ 100	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$
95 $\pm$ 30	HOEHLER	79	IPWA $\pi N \rightarrow \pi N$

 **$N(2090)$  POLE POSITION****REAL PART**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2150 $\pm$ 70	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$
1937 or 1949	<sup>1</sup> LONGACRE	78	IPWA $\pi N \rightarrow N\pi\pi$

 **$-2\times$ IMAGINARY PART**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
350 $\pm$ 100	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$
139 or 131	<sup>1</sup> LONGACRE	78	IPWA $\pi N \rightarrow N\pi\pi$

 **$N(2090)$  ELASTIC POLE RESIDUE****MODULUS  $|r|$** 

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
40 $\pm$ 20	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

**PHASE  $\theta$** 

<u>VALUE (<math>^\circ</math>)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0 $\pm$ 90	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

## N(2090) DECAY MODES

Mode
$\Gamma_1 \quad N\pi$
$\Gamma_2 \quad \Lambda K$
$\Gamma_3 \quad N\pi\pi$

## N(2090) BRANCHING RATIOS

$\Gamma(N\pi)/\Gamma_{\text{total}}$	$\Gamma_1/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u> <u>TECN</u> <u>COMMENT</u>
0.10±0.10	MANLEY    92    IPWA $\pi N \rightarrow \pi N \text{ \& } N\pi\pi$
0.18±0.08	CUTKOSKY    80    IPWA $\pi N \rightarrow \pi N$
0.09±0.05	HOEHLER    79    IPWA $\pi N \rightarrow \pi N$

$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\pi \rightarrow N(2090) \rightarrow \Lambda K$	$(\Gamma_1\Gamma_2)^{1/2}/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u> <u>TECN</u> <u>COMMENT</u>
not seen	SAXON    80    DPWA $\pi^- p \rightarrow \Lambda K^0$

## N(2090) FOOTNOTES

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

## N(2090) REFERENCES

MANLEY    92    PR D45 4002	+Saleski	(KENT) IJP
Also    84    PR D30 904	Manley, Arndt, Goradia, Teplitz	(VPI)
CUTKOSKY    80    Toronto Conf. 19	+Forsyth, Babcock, Kelly, Hendrick	(CMU, LBL) IJP
Also    79    PR D20 2839	Cutkosky, Forsyth, Hendrick, Kelly	(CMU, LBL)
SAXON    80    NP B162 522	+Baker, Bell, Blissett, Bloodworth+	(RHEL, BRIS) IJP
HOEHLER    79    PDAT 12-1	+Kaiser, Koch, Pietarinen	(KARLT) IJP
Also    80    Toronto Conf. 3	Koch	(KARLT) IJP
LONGACRE    78    PR D17 1795	+Lasinski, Rosenfeld, Smadja+	(LBL, SLAC)