

$N(2250) 9/2^-$  $I(J^P) = \frac{1}{2}(\frac{9}{2}^-)$  Status: \*\*\*\*Older and obsolete values are listed and referenced in the 2014 edition, *Chinese Physics C* **38** 070001 (2014). **$N(2250)$  POLE POSITION****REAL PART**

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>2150 to 2250 (<math>\approx</math> 2200) OUR ESTIMATE</b>			
$2157 \pm 3 \pm 14$	<sup>1</sup> SVARC 14	L+P	$\pi N \rightarrow \pi N$
$2195 \pm 45$	ANISOVICH 12A	DPWA	Multichannel
2217	ARNDT 06	DPWA	$\pi N \rightarrow \pi N, \eta N$
2187	HOEHLER 93	SPED	$\pi N \rightarrow \pi N$
$2150 \pm 50$	CUTKOSKY 80	IPWA	$\pi N \rightarrow \pi N$

**- 2xIMAGINARY PART**

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>350 to 550 (<math>\approx</math> 450) OUR ESTIMATE</b>			
$412 \pm 7 \pm 44$	<sup>1</sup> SVARC 14	L+P	$\pi N \rightarrow \pi N$
$470 \pm 50$	ANISOVICH 12A	DPWA	Multichannel
431	ARNDT 06	DPWA	$\pi N \rightarrow \pi N, \eta N$
388	HOEHLER 93	SPED	$\pi N \rightarrow \pi N$
$360 \pm 100$	CUTKOSKY 80	IPWA	$\pi N \rightarrow \pi N$

 **$N(2250)$  ELASTIC POLE RESIDUE****MODULUS  $|r|$** 

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>20 to 30 (<math>\approx</math> 25) OUR ESTIMATE</b>			
$24 \pm 1 \pm 5$	<sup>1</sup> SVARC 14	L+P	$\pi N \rightarrow \pi N$
$26 \pm 5$	ANISOVICH 12A	DPWA	Multichannel
21	ARNDT 06	DPWA	$\pi N \rightarrow \pi N, \eta N$
21	HOEHLER 93	SPED	$\pi N \rightarrow \pi N$
$20 \pm 6$	CUTKOSKY 80	IPWA	$\pi N \rightarrow \pi N$

**PHASE  $\theta$** 

VALUE ( $^\circ$ )	DOCUMENT ID	TECN	COMMENT
<b>-20 to -60 (<math>\approx</math> -40) OUR ESTIMATE</b>			
$-62 \pm 1 \pm 11$	<sup>1</sup> SVARC 14	L+P	$\pi N \rightarrow \pi N$
$-38 \pm 25$	ANISOVICH 12A	DPWA	Multichannel
-20	ARNDT 06	DPWA	$\pi N \rightarrow \pi N, \eta N$
$-50 \pm 20$	CUTKOSKY 80	IPWA	$\pi N \rightarrow \pi N$

 **$N(2250)$  BREIT-WIGNER MASS**

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>2250 to 2320 (<math>\approx</math> 2280) OUR ESTIMATE</b>			
$2280 \pm 40$	ANISOVICH 12A	DPWA	Multichannel
$2302 \pm 6$	ARNDT 06	DPWA	$\pi N \rightarrow \pi N, \eta N$
$2250 \pm 80$	CUTKOSKY 80	IPWA	$\pi N \rightarrow \pi N$
$2268 \pm 15$	HOEHLER 79	IPWA	$\pi N \rightarrow \pi N$

**$N(2250)$  BREIT-WIGNER WIDTH**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>300 to 600 (<math>\approx 500</math>) OUR ESTIMATE</b>			
520 $\pm$ 50	ANISOVICH	12A DPWA	Multichannel
628 $\pm$ 28	ARNDT	06 DPWA	$\pi N \rightarrow \pi N, \eta N$
480 $\pm$ 120	CUTKOSKY	80 IPWA	$\pi N \rightarrow \pi N$
300 $\pm$ 40	HOEHLER	79 IPWA	$\pi N \rightarrow \pi N$

 **$N(2250)$  DECAY MODES**

The following branching fractions are our estimates, not fits or averages.

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1 \quad N\pi$	5–15 %

 **$N(2250)$  BRANCHING RATIOS**

<u><math>\Gamma(N\pi)/\Gamma_{\text{total}}</math></u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	<u><math>\Gamma_1/\Gamma</math></u>
<b>5 to 15 OUR ESTIMATE</b>				
12 $\pm$ 4	ANISOVICH	12A DPWA	Multichannel	
8.9 $\pm$ 0.1	ARNDT	06 DPWA	$\pi N \rightarrow \pi N, \eta N$	
10 $\pm$ 2	CUTKOSKY	80 IPWA	$\pi N \rightarrow \pi N$	
10 $\pm$ 2	HOEHLER	79 IPWA	$\pi N \rightarrow \pi N$	

 **$N(2250)$  FOOTNOTES**

<sup>1</sup> Fit to the amplitudes of HOEHLER 79.

 **$N(2250)$  REFERENCES**

PDG	14	CPC 38 070001	K. Olive <i>et al.</i>	(PDG Collab.)
SVARC	14	PR C89 045205	A. Svarc <i>et al.</i>	
ANISOVICH	12A	EPJ A48 15	A.V. Anisovich <i>et al.</i>	(BONN, PNPI)
ARNDT	06	PR C74 045205	R.A. Arndt <i>et al.</i>	(GWU)
HOEHLER	93	$\pi N$ Newsletter 9 1	G. Hohler	(KARL)
CUTKOSKY	80	Toronto Conf. 19	R.E. Cutkosky <i>et al.</i>	(CMU, LBL) IJP
Also		PR D20 2839	R.E. Cutkosky <i>et al.</i>	(CMU, LBL) IJP
HOEHLER	79	PDAT 12-1	G. Hohler <i>et al.</i>	(KARLT) IJP
Also		Toronto Conf. 3	R. Koch	(KARLT) IJP