

$\Delta(2000) F_{35}$ $I(J^P) = \frac{3}{2}(\frac{5}{2}^+)$ Status: **

OMITTED FROM SUMMARY TABLE

 $\Delta(2000)$ BREIT-WIGNER MASS

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
≈ 2000 OUR ESTIMATE			
1752 ± 32	MANLEY	92	IPWA $\pi N \rightarrow \pi N$ & $N\pi\pi$
2200 ± 125	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

 $\Delta(2000)$ BREIT-WIGNER WIDTH

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
251 ± 93	MANLEY	92	IPWA $\pi N \rightarrow \pi N$ & $N\pi\pi$
400 ± 125	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

 $\Delta(2000)$ POLE POSITION**REAL PART**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2150 ± 100	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

 $-2 \times$ IMAGINARY PART

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
350 ± 100	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

 $\Delta(2000)$ ELASTIC POLE RESIDUE**MODULUS $|r|$**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
16 ± 5	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

PHASE θ

<u>VALUE ($^\circ$)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
150 ± 90	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

 $\Delta(2000)$ DECAY MODES

Mode	
Γ_1	$N\pi$
Γ_2	$N\pi\pi$
Γ_3	$\Delta(1232)\pi$, <i>P</i> -wave
Γ_4	$\Delta(1232)\pi$, <i>F</i> -wave
Γ_5	$N\rho$, $S=3/2$, <i>P</i> -wave

$\Delta(2000)$ BRANCHING RATIOS

$\Gamma(N\pi)/\Gamma_{\text{total}}$				Γ_1/Γ
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
0.02 ± 0.01	MANLEY	92 IPWA	$\pi N \rightarrow \pi N \text{ \& } N\pi\pi$	
0.07 ± 0.04	CUTKOSKY	80 IPWA	$\pi N \rightarrow \pi N$	
$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\pi \rightarrow \Delta(2000) \rightarrow \Delta(1232)\pi$, <i>P-wave</i>				
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	$(\Gamma_1\Gamma_3)^{1/2}/\Gamma$
+0.07 ± 0.03	MANLEY	92 IPWA	$\pi N \rightarrow \pi N \text{ \& } N\pi\pi$	
$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\pi \rightarrow \Delta(2000) \rightarrow \Delta(1232)\pi$, <i>F-wave</i>				
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	$(\Gamma_1\Gamma_4)^{1/2}/\Gamma$
+0.09 ± 0.04	MANLEY	92 IPWA	$\pi N \rightarrow \pi N \text{ \& } N\pi\pi$	
$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\pi \rightarrow \Delta(2000) \rightarrow N\rho$, <i>S=3/2, P-wave</i>				
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	$(\Gamma_1\Gamma_5)^{1/2}/\Gamma$
-0.06 ± 0.01	MANLEY	92 IPWA	$\pi N \rightarrow \pi N \text{ \& } N\pi\pi$	

$\Delta(2000)$ 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)
Also	79	PR D20 2839	Cutkosky, Forsyth, Hendrick, Kelly	(CMU, LBL)