

$\Delta(2200) 7/2^-$  $I(J^P) = \frac{3}{2}(\frac{7}{2}^-)$  Status: \*

## OMITTED FROM SUMMARY TABLE

The various analyses are not in good agreement.

The latest GWU analysis (ARNDT 06) finds no evidence for this resonance.

 **$\Delta(2200)$  BREIT-WIGNER MASS**

| <u>VALUE (MeV)</u>  | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u>                          |
|---|--------------------|-------------|---|
| <b><math>\approx 2200</math> OUR ESTIMATE</b>                                 |                    |             |   |
| 2200 $\pm$ 80   | CUTKOSKY           | 80          | IPWA $\pi N \rightarrow \pi N$          |
| 2215 $\pm$ 60   | HOEHLER            | 79          | IPWA $\pi N \rightarrow \pi N$          |
| 2280 $\pm$ 80   | HENDRY             | 78          | MPWA $\pi N \rightarrow \pi N$          |
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● |                    |             |   |
| 2280 $\pm$ 40   | CANDLIN            | 84          | DPWA $\pi^+ p \rightarrow \Sigma^+ K^+$ |

 **$\Delta(2200)$  BREIT-WIGNER WIDTH**

| <u>VALUE (MeV)</u>  | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u>                          |
|---|--------------------|-------------|---|
| 450 $\pm$ 100   | CUTKOSKY           | 80          | IPWA $\pi N \rightarrow \pi N$          |
| 400 $\pm$ 100   | HOEHLER            | 79          | IPWA $\pi N \rightarrow \pi N$          |
| 400 $\pm$ 150   | HENDRY             | 78          | MPWA $\pi N \rightarrow \pi N$          |
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● |                    |             |   |
| 400 $\pm$ 50  | CANDLIN            | 84          | DPWA $\pi^+ p \rightarrow \Sigma^+ K^+$ |

 **$\Delta(2200)$  POLE POSITION****REAL PART**

| <u>VALUE (MeV)</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u>                 |
|--------------------|--------------------|-------------|--------------------------------|
| 2100 $\pm$ 50      | 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>                 |
|--------------------|--------------------|-------------|--------------------------------|
| 340 $\pm$ 80       | CUTKOSKY           | 80          | IPWA $\pi N \rightarrow \pi N$ |

 **$\Delta(2200)$  ELASTIC POLE RESIDUE****MODULUS  $|r|$** 

| <u>VALUE (MeV)</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u>                 |
|--------------------|--------------------|-------------|--------------------------------|
| 8 $\pm$ 3          | 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>                 |
|------------------------------------|--------------------|-------------|--------------------------------|
| -70 $\pm$ 40                       | CUTKOSKY           | 80          | IPWA $\pi N \rightarrow \pi N$ |

## $\Delta(2200)$ DECAY MODES

| Mode                  |
|-----------------------|
| $\Gamma_1$ $N\pi$     |
| $\Gamma_2$ $\Sigma K$ |

## $\Delta(2200)$ BRANCHING RATIOS

| $\Gamma(N\pi)/\Gamma_{\text{total}}$ | $\Gamma_1/\Gamma$                                |
|--------------------------------------|--|
| VALUE (%)                            | DOCUMENT ID    TECN    COMMENT                   |
| $6 \pm 2$                            | CUTKOSKY    80    IPWA $\pi N \rightarrow \pi N$ |
| $5 \pm 2$                            | HOEHLER    79    IPWA $\pi N \rightarrow \pi N$  |
| $9 \pm 2$                            | HENDRY    78    MPWA $\pi N \rightarrow \pi N$   |

| $(\Gamma_i \Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\pi \rightarrow \Delta(2200) \rightarrow \Sigma K$ | $(\Gamma_1 \Gamma_2)^{1/2}/\Gamma$                       |
|---|--|
| VALUE   | DOCUMENT ID    TECN    COMMENT                           |
| $-0.014 \pm 0.005$  | CANDLIN    84    DPWA $\pi^+ p \rightarrow \Sigma^+ K^+$ |

## $\Delta(2200)$ REFERENCES

|          |    |                  |                             |                   |
|----------|----|------------------|-----------------------------|-------------------|
| ARNDT    | 06 | PR C74 045205    | R.A. Arndt <i>et al.</i>    |                   |
| CANDLIN  | 84 | NP B238 477      | D.J. Candlin <i>et al.</i>  | (GWU)             |
| CUTKOSKY | 80 | Toronto Conf. 19 | R.E. Cutkosky <i>et al.</i> | (EDIN, RAL, LOWC) |
| 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>     | (CMU, LBL) IJP    |
| Also     |    | Toronto Conf. 3  | R. Koch                     | (KARLT) IJP       |
| HENDRY   | 78 | PRL 41 222       | A.W. Hendry                 | (KARLT) IJP       |
| Also     |    | ANP 136 1        | A.W. Hendry                 | (IND, LBL) IJP    |
|          |    |                  |                             | (IND)             |