

$\Sigma(2070) F_{15}$

$$I(J^P) = 1(\frac{5}{2}^+) \text{ Status: } *$$

OMITTED FROM SUMMARY TABLE

This state suggested by BERTHON 70B finds support in GOPAL 80 with new $K^- p$ polarization and $K^- n$ angular distributions. The very broad state seen in KANE 72 is not required in the later (KANE 74) analysis of $\bar{K}N \rightarrow \Sigma \pi$.

$\Sigma(2070)$ MASS

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
≈ 2070 OUR ESTIMATE			
2051 ± 25	GOPAL	80	DPWA $\bar{K}N \rightarrow \bar{K}N$
2057	KANE	72	DPWA $K^- p \rightarrow \Sigma \pi$
2070 ± 10	BERTHON	70B	DPWA $K^- p \rightarrow \Sigma \pi$

$\Sigma(2070)$ WIDTH

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
300 ± 30	GOPAL	80	DPWA $\bar{K}N \rightarrow \bar{K}N$
906	KANE	72	DPWA $K^- p \rightarrow \Sigma \pi$
140 ± 20	BERTHON	70B	DPWA $K^- p \rightarrow \Sigma \pi$

$\Sigma(2070)$ DECAY MODES

Mode	
Γ_1	$N\bar{K}$
Γ_2	$\Sigma \pi$

$\Sigma(2070)$ BRANCHING RATIOS

See "Sign conventions for resonance couplings" in the Note on Λ and Σ Resonances.

$\Gamma(N\bar{K})/\Gamma_{\text{total}}$				Γ_1/Γ
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
0.08 ± 0.03	GOPAL	80	DPWA $\bar{K}N \rightarrow \bar{K}N$	
$(\Gamma_i \Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\bar{K} \rightarrow \Sigma(2070) \rightarrow \Sigma \pi$				$(\Gamma_1 \Gamma_2)^{1/2}/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
+0.104	KANE	72	DPWA $K^- p \rightarrow \Sigma \pi$	
+0.12 ± 0.02	BERTHON	70B	DPWA $K^- p \rightarrow \Sigma \pi$	

$\Sigma(2070)$ REFERENCES

GOPAL	80	Toronto Conf. 159	(RHEL) IJP
KANE	74	LBL-2452	(LBL)
KANE	72	PR D5 1583	(LBL)
BERTHON	70B	NP B24 417	+Vrana, Butterworth+ (CDEF, RHEL, SACL) IJP
