$\Sigma(2070)\ F_{15}$

$I(J^P) = 1(\frac{5}{2}^+)$ 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 $\overline{K} N \rightarrow \Sigma\pi$.

$\Sigma(2070)$ MASS

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

$\Sigma(2070)$ WIDTH

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
300±30	GOPAL	80	DPWA	$\overline{K} N \rightarrow \overline{K} N$
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	$N\overline{K}$
Γ_2	$\Sigma\pi$

$\Sigma(2070)$ BRANCHING RATIOS

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

$\Gamma(N\overline{K})/\Gamma_{total}$ — Γ_1/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.08±0.03	GOPAL	80	DPWA	$\overline{K} N \rightarrow \overline{K} N$

$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{total}$ in $N\overline{K} \rightarrow \Sigma(2070) \rightarrow \Sigma\pi$ — $(\Gamma_1\Gamma_2)^{1/2}/\Gamma$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
+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