$\Sigma(1780)\ 3/2^+$

$I(J^P) = 1(\frac{3}{2}^+)$ Status: *

OMITTED FROM SUMMARY TABLE
was $\Sigma(1730)$

$\Sigma(1780)$ MASS

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
1730 to 1830 (≈ 1780) OUR ESTIMATE				
1727±27	ZHANG	13A	DPWA	Multichannel
1798 or 1802	[1] MARTIN	77	DPWA	$\overline{K}N$ multichannel
1720±30	[2] BAILLON	75	IPWA	$\overline{K}N \to \Lambda\pi$
1840±10	LANGBEIN	72	IPWA	$\overline{K}N$ multichannel

[1] The two MARTIN 77 values are from a T-matrix pole and from a Breit-Wigner fit.
[2] From solution 1 of BAILLON 75; not present in solution 2.

$\Sigma(1780)$ WIDTH

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
100 to 300 (≈ 200) OUR ESTIMATE				
276±87	ZHANG	13A	DPWA	Multichannel
93 or 93	[1] MARTIN	77	DPWA	$\overline{K}N$ multichannel
120±30	[2] BAILLON	75	IPWA	$\overline{K}N \to \Lambda\pi$
120±10	LANGBEIN	72	IPWA	$\overline{K}N$ multichannel

[1] The two MARTIN 77 values are from a T-matrix pole and from a Breit-Wigner fit.
[2] From solution 1 of BAILLON 75; not present in solution 2.

$\Sigma(1780)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$N\overline{K}$	(2.0± 1.0) %
Γ_2	$\Lambda\pi$	(70 ±17) %
Γ_3	$\Sigma\pi$	(12 ± 6) %

$\Sigma(1780)$ BRANCHING RATIOS

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.02±0.01	ZHANG	13A	DPWA	Multichannel

$\Gamma(\Lambda\pi)/\Gamma_{total}$ Γ_2/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.70±0.17	ZHANG	13A	DPWA	Multichannel

$\Gamma(\Sigma\pi)/\Gamma_{total}$ Γ_3/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.12±0.06	ZHANG	13A	DPWA	Multichannel

Σ(1780) REFERENCES

ZHANG	13A	PR C88 035205	H. Zhang *et al.*	(KSU)
MARTIN	77	NP B127 349	B.R. Martin, M.K. Pidcock, R.G. Moorhouse	(LOUC+)
BAILLON	75	NP B94 39	P.H. Baillon, P.J. Litchfield	(CERN, RHEL)
LANGBEIN	72	NP B47 477	W. Langbein, F. Wagner	(MPIM)