NODE=B026

$\Sigma(2100)\ 7/2^-$

$I(J^P) = 1(\frac{7}{2}^-)$ Status: ∗

OMITTED FROM SUMMARY TABLE

Σ(2100) POLE POSITION

NODE=B026225

REAL PART

NODE=B026RE
NODE=B026RE

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
2093±16	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

−2×IMAGINARY PART

NODE=B026IM
NODE=B026IM

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
210±35	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Σ(2100) POLE RESIDUES

NODE=B026250

Normalized residue in $N\overline{K} \to \Sigma(2100) \to N\overline{K}$

NODE=B026A00
NODE=B026A00

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.09±0.02	**−110 ± 15**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2100) \to \Sigma\pi$

NODE=B026A01
NODE=B026A01

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.04±0.02	**−50 ± 20**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2100) \to \Lambda\pi$

NODE=B026A02
NODE=B026A02

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.03±0.02	**−100 ± 25**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2100) \to \Xi K$

NODE=B026A03
NODE=B026A03

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.010±0.005	**−120 ± 35**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2100) \to \Lambda(1520)\pi$, F-wave

NODE=B026A04
NODE=B026A04

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.02±0.01	**−100 ± 30**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2100) \to \Lambda(1520)\pi$, H-wave

NODE=B026A05
NODE=B026A05

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.01±0.01		SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2100) \to \Sigma(1385)\pi$, D-wave

NODE=B026A06
NODE=B026A06

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.10±0.03	**−60 ± 30**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2100) \to \Sigma(1385)\pi$, G-wave

NODE=B026A07
NODE=B026A07

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.03±0.01	**−50 ± 30**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2100) \to \Delta\overline{K}$, G-wave

NODE=B026A08
NODE=B026A08

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.04±0.02	**75 ± 35**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2100) \to N\overline{K}^*(892)$, S=3/2, D-wave

NODE=B026A09
NODE=B026A09

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.08±0.04	**20 ± 50**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Σ(2100) MASS

NODE=B026M

NODE=B026M

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
≈ 2100 OUR ESTIMATE				
2146±17	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel
2060±20	BARBARO-...	70	DPWA	$K^- p \to \Lambda\pi^0$
2120±30	BARBARO-...	70	DPWA	$K^- p \to \Sigma\pi$

→ UNCHECKED ←

OCCUR=2

$\Sigma(2100)$ WIDTH

NODE=B026W

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
260±40	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel
70±30	BARBARO-... 70	DPWA	$K^- p \to \Lambda\pi^0$
135±30	BARBARO-... 70	DPWA	$K^- p \to \Sigma\pi$

NODE=B026W
OCCUR=2

$\Sigma(2100)$ DECAY MODES

NODE=B026215;NODE=B026

	Mode	Fraction (Γ_i/Γ)	
Γ_1	$N\overline{K}$	(8.0±2.0) %	DESIG=1
Γ_2	$\Lambda\pi$	(1.5±1.0) %	DESIG=2
Γ_3	$\Sigma\pi$	(2.0±1.0) %	DESIG=3
Γ_4	ΞK		DESIG=4
Γ_5	$\Sigma(1385)\pi$, D-wave	(12 ±6) %	DESIG=5
Γ_6	$\Sigma(1385)\pi$, G-wave		DESIG=6
Γ_7	$\Lambda(1520)\pi$, F-wave	(1.0±1.0) %	DESIG=8
Γ_8	$\Lambda(1520)\pi$, H-wave		DESIG=9
Γ_9	$N\overline{K}^*(892)$, S=3/2, D-wave	(6.0±3.0) %	DESIG=10
Γ_{10}	$\Delta\overline{K}$, G-wave	(1.0±1.0) %	DESIG=11

$\Sigma(2100)$ BRANCHING RATIOS

NODE=B026220

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

NODE=B026220

$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{total}$ in $N\overline{K} \to \Sigma(2100) \to \Lambda\pi$ — $(\Gamma_1\Gamma_2)^{1/2}/\Gamma$

NODE=B026R1
NODE=B026R1

VALUE	DOCUMENT ID	TECN	COMMENT
−0.07±0.02	BARBARO-... 70	DPWA	$K^- p \to \Lambda\pi^0$

$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{total}$ in $N\overline{K} \to \Sigma(2100) \to \Sigma\pi$ — $(\Gamma_1\Gamma_3)^{1/2}/\Gamma$

NODE=B026R2
NODE=B026R2

VALUE	DOCUMENT ID	TECN	COMMENT
+0.13±0.02	BARBARO-... 70	DPWA	$K^- p \to \Sigma\pi$

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

NODE=B026R00
NODE=B026R00

VALUE	DOCUMENT ID	TECN	COMMENT
0.08±0.02	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel

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

NODE=B026R01
NODE=B026R01

VALUE	DOCUMENT ID	TECN	COMMENT
0.015±0.01	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel

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

NODE=B026R02
NODE=B026R02

VALUE	DOCUMENT ID	TECN	COMMENT
0.02±0.01	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel

$\Gamma(\Xi K)/\Gamma_{total}$ — Γ_4/Γ

NODE=B026R03
NODE=B026R03

VALUE	DOCUMENT ID	TECN	COMMENT
<0.01	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel

$\Gamma(\Sigma(1385)\pi$, D-wave$)/\Gamma_{total}$ — Γ_5/Γ

NODE=B026R04
NODE=B026R04

VALUE	DOCUMENT ID	TECN	COMMENT
0.12±0.06	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel

$\Gamma(\Sigma(1385)\pi$, G-wave$)/\Gamma_{total}$ — Γ_6/Γ

NODE=B026R05
NODE=B026R05

VALUE	DOCUMENT ID	TECN	COMMENT
∼ 0.01	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel

$\Gamma(\Lambda(1520)\pi$, F-wave$)/\Gamma_{total}$ — Γ_7/Γ

NODE=B026R06
NODE=B026R06

VALUE	DOCUMENT ID	TECN	COMMENT
0.01±0.01	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel

$\Gamma(\Lambda(1520)\pi$, H-wave$)/\Gamma_{total}$ — Γ_8/Γ

NODE=B026R07
NODE=B026R07

VALUE	DOCUMENT ID	TECN	COMMENT
∼ 0	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel

$\Gamma(N\overline{K}^*(892), S=3/2, D\text{-wave})/\Gamma_{total}$ Γ_9/Γ

NODE=B026R08
NODE=B026R08

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.06±0.03	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel

$\Gamma(\Delta\overline{K}, G\text{-wave})/\Gamma_{total}$ Γ_{10}/Γ

NODE=B026R09
NODE=B026R09

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.01±0.01	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel

$\Sigma(2100)$ REFERENCES

NODE=B026

SARANTSEV 19 EPJ A55 180 A.V. Sarantsev *et al.* (BONN, PNPI) REFID=59986

BARBARO-... 70 Duke Conf. 173 A. Barbaro-Galtieri (LRL) IJP REFID=31777
Hyperon Resonances, 1970