$\Sigma(2010)\ 3/2^-$

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

OMITTED FROM SUMMARY TABLE
was $\Sigma(2000)$

$\Sigma(2010)$ POLE POSITION

REAL PART

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
1995±12	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

−2×IMAGINARY PART

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
175±24	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

$\Sigma(2010)$ POLE RESIDUES

The normalized residue is the residue divided by $\Gamma_{pole}/2$.

Normalized residue in $N\overline{K} \to \Sigma(2010) \to N\overline{K}$

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.07±0.03	**−115 ± 25**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2010) \to \Sigma\pi$

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.04±0.02	**130 ± 22**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2010) \to \Lambda\pi$

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.06±0.03	**170 ± 25**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2010) \to \Xi K$

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.04±0.02	**−120 ± 45**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2010) \to \Lambda(1520)\pi$, *P*-wave

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.03±0.02	**80 ± 35**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2010) \to \Lambda(1520)\pi$, *F*-wave

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.08±0.05	**150 ± 65**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2010) \to \Sigma(1385)\pi$, *P*-wave

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.04+-0.02025+-45	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2010) \to \Sigma(1385)\pi$, *F*-wave

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

Normalized residue in $N\overline{K} \to \Sigma(2010) \to \Delta\overline{K}$, *S*-wave

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
0.08±0.04	**0 ± 30**	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2010) \to \Delta\overline{K}$, *D*-wave

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

Normalized residue in $N\overline{K} \to \Sigma(2010) \to N\overline{K}^*(892)$, *S*-wave

VALUE	DOCUMENT ID	TECN	COMMENT
0.12+-0.03@-60+-60	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2010) \to N\overline{K}^*(892)$, *S*=1/2 , *D*-wave

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
0.08±0.04	**55 ± 60**	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2010) \to N\overline{K}^*(892)$, *S*=3/2 , *D*-wave

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
0.08±0.04	**15 ± 60**	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel

$\Sigma(2010)$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
2005±14	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel

$\Sigma(2010)$ WIDTH

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
178±23	SARANTSEV 19	DPWA	$\overline{K}N$ multichannel

$\Sigma(2010)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$N\overline{K}$	(7.0±3.0) %
Γ_2	$\Lambda\pi$	(5.0±2.0) %
Γ_3	$\Sigma\pi$	(3.0±2.0) %
Γ_4	ΞK	(3.0±2.0) %
Γ_5	$\Sigma(1385)\pi$, *P*-wave	(3.0±2.0) %
Γ_6	$\Sigma(1385)\pi$, *F*-wave	(2.0±2.0) %
Γ_7	$\Lambda(1520)\pi$, *P*-wave	(2.0±2.0) %
Γ_8	$\Lambda(1520)\pi$, *F*-wave	(12 ±6) %
Γ_9	$\Delta\overline{K}$, *S*-wave	(11 ±5) %

Γ_{10}	$\Delta\overline{K}$, D-wave	(1.0±1.0) %
Γ_{11}	$N\overline{K}^*(892)$, S=1/2, S-wave	(27 ±7) %
Γ_{12}	$N\overline{K}^*(892)$, S=1/2 , D-wave	(13 ±6) %
Γ_{13}	$N\overline{K}^*(892)$, S=3/2, D-wave	(13 ±6) %

$\Sigma(2010)$ 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
0.07±0.03	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.05±0.02	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.03±0.02	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

$\Gamma(\Xi K)/\Gamma_{total}$ Γ_4/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.03±0.02	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.03±0.02	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

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

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

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

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

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

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

$\Gamma(\Delta\overline{K}$, S-wave$)/\Gamma_{total}$ Γ_9/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.11±0.05	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

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

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

$\Gamma(N\overline{K}^*(892), S{=}1/2, S\text{-wave})/\Gamma_{total}$ **Γ_{11}/Γ**

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.27±0.07	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

$\Gamma(N\overline{K}^*(892), S{=}1/2, D\text{-wave})/\Gamma_{total}$ **Γ_{12}/Γ**

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.13±0.06	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

$\Gamma(N\overline{K}^*(892), S{=}3/2, D\text{-wave})/\Gamma_{total}$ **Γ_{13}/Γ**

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.13±0.06	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

$\Sigma(2010)$ REFERENCES

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