$\Sigma(2230)\ 3/2^+$

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

OMITTED FROM SUMMARY TABLE

$\Sigma(2230)$ POLE POSITION

REAL PART

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2234±25	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

−2×IMAGINARY PART

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
340±45	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

$\Sigma(2230)$ POLE RESIDUES

Normalized residue in $N\overline{K} \to \Sigma(2230) \to N\overline{K}$

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.07±0.02	**25 ± 15**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2230) \to \Sigma\pi$

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.03±0.02	**180 ± 25**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue is $N\overline{K} \to \Sigma(2030) \to \Lambda\pi$

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.11±0.05	**−16 ± 10**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2230) \to \Xi K$

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.04±0.02	**155 ± 20**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2230) \to \Lambda(1520)\pi$, *S*-wave

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.12±0.05	**−80 ± 25**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2230) \to \Lambda(1520)\pi$, *D*-wave

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.03±0.02	**160 ± 30**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2230) \to \Sigma(1385)\pi$, *P*-wave

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.05±0.02	**60 ± 25**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2230) \to \Sigma(1385)\pi$, *F*-wave

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.05±0.03	**−70 ± 20**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2230) \to \Delta\overline{K}$, *P*-wave

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.11±0.04	**60 ± 15**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2230) \to \Delta\overline{K}$, *F*-wave

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.07±0.03	**90 ± 25**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2230) \to N\overline{K}^*(892)$, S=1/2 , *P*-wave

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.08±0.04	**40 ± 45**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2230) \to N\overline{K}^*(892)$, S=3/2 , *P*-wave

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.14±0.03	**−40 ± 45**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Normalized residue in $N\overline{K} \to \Sigma(2230) \to N\overline{K}^*(892)$, S=3/2 , *F*-wave

MODULUS	*PHASE (°)*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.05±0.03	**35 ± 30**	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

$\Sigma(2230)$ MASS

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2240±27	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

$\Sigma(2230)$ WIDTH

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
345±50	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

$\Sigma(2230)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$N\overline{K}$	(6.0±2.0) %
Γ_2	$\Sigma\pi$	(2.0±1.0) %
Γ_3	$\Lambda\pi$	(12 ±6) %
Γ_4	ΞK	(2.0±1.0) %
Γ_5	$\Lambda(1520)\pi$, *S*-wave	(14 ±5) %
Γ_6	$\Lambda(1520)\pi$, *D*-wave	
Γ_7	$\Sigma(1385)\pi$, *P*-wave	(4 ±4) %
Γ_8	$\Sigma(1385)\pi$, *F*-wave	(3.0±2.0) %
Γ_9	$\Delta\overline{K}$, *P*-wave	(14 ±5) %
Γ_{10}	$\Delta\overline{K}$, *F*-wave	(8.0±2.0) %
Γ_{11}	$N\overline{K}^*(892)$, S=1/2 , *F*-wave	(8.0±3.0) %
Γ_{12}	$N\overline{K}^*(892)$, S=3/2 , *F*-wave	(26 ±5) %

$\Sigma(2230)$ BRANCHING RATIOS

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.06±0.02	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

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

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

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

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

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

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

$\Gamma(\Lambda(1520)\pi$, *S*-wave$)/\Gamma_{total}$ — Γ_5/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.14±0.05	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

$\Gamma(\Lambda(1520)\pi$, *D*-wave$)/\Gamma_{total}$ — Γ_6/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
~ 1	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

$\Gamma(\Sigma(1385)\pi$, *P*-wave$)/\Gamma_{total}$ — Γ_7/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.04±0.04	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

$\Gamma(\Sigma(1385)\pi$, *F*-wave$)/\Gamma_{total}$ — Γ_8/Γ

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

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.14±0.05	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

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

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

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.08±0.03	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

$\Gamma(N\overline{K}^*(892)$, S=3/2, *F*-wave$)/\Gamma_{total}$ — Γ_{12}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.26±0.05	SARANTSEV	19	DPWA	$\overline{K}N$ multichannel

Σ(2230) REFERENCES

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