

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

$I(J^P) = 1(\frac{3}{2}^+)$ 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 $N\overline{K} \rightarrow \Sigma(2230) \rightarrow N\overline{K}$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Normalized residue in $N\bar{K} \rightarrow \Sigma(2230) \rightarrow \Delta\bar{K}$, P -wave

<u>MODULUS</u>	<u>PHASE ($^\circ$)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.11 ± 0.04	60 ± 15	SARANTSEV	19	DPWA $\bar{K}N$ multichannel

Normalized residue in $N\bar{K} \rightarrow \Sigma(2230) \rightarrow \Delta\bar{K}$, F -wave

<u>MODULUS</u>	<u>PHASE ($^\circ$)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.07 ± 0.03	90 ± 25	SARANTSEV	19	DPWA $\bar{K}N$ multichannel

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

<u>MODULUS</u>	<u>PHASE ($^\circ$)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.08 ± 0.04	40 ± 45	SARANTSEV	19	DPWA $\bar{K}N$ multichannel

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

<u>MODULUS</u>	<u>PHASE ($^\circ$)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.14 ± 0.03	-40 ± 45	SARANTSEV	19	DPWA $\bar{K}N$ multichannel

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

<u>MODULUS</u>	<u>PHASE ($^\circ$)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.05 ± 0.03	35 ± 30	SARANTSEV	19	DPWA $\bar{K}N$ multichannel

 $\Sigma(2230)$ MASS

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2240 ± 27	SARANTSEV	19	DPWA $\bar{K}N$ multichannel

 $\Sigma(2230)$ WIDTH

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
345 ± 50	SARANTSEV	19	DPWA $\bar{K}N$ multichannel

 $\Sigma(2230)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$N\bar{K}$	(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	$\Delta\bar{K}$, P -wave	(14 ± 5) %
Γ_{10}	$\Delta\bar{K}$, F -wave	(8.0 ± 2.0) %
Γ_{11}	$N\bar{K}^*(892)$, $S=1/2$, F -wave	(8.0 ± 3.0) %
Γ_{12}	$N\bar{K}^*(892)$, $S=3/2$, F -wave	(26 ± 5) %

$\Sigma(2230)$ BRANCHING RATIOS

$\Gamma(N\bar{K})/\Gamma_{\text{total}}$				Γ_1/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.06 ± 0.02	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel	
$\Gamma(\Sigma\pi)/\Gamma_{\text{total}}$				Γ_2/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.02 ± 0.01	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel	
$\Gamma(\Lambda\pi)/\Gamma_{\text{total}}$				Γ_3/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.12 ± 0.06	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel	
$\Gamma(\Xi K)/\Gamma_{\text{total}}$				Γ_4/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.02 ± 0.01	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel	
$\Gamma(\Lambda(1520)\pi, S\text{-wave})/\Gamma_{\text{total}}$				Γ_5/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.14 ± 0.05	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel	
$\Gamma(\Lambda(1520)\pi, D\text{-wave})/\Gamma_{\text{total}}$				Γ_6/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
• • • We do not use the following data for averages, fits, limits, etc. • • •				
~ 1	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel	
$\Gamma(\Sigma(1385)\pi, P\text{-wave})/\Gamma_{\text{total}}$				Γ_7/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.04 ± 0.04	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel	
$\Gamma(\Sigma(1385)\pi, F\text{-wave})/\Gamma_{\text{total}}$				Γ_8/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.03 ± 0.02	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel	
$\Gamma(\Delta\bar{K}, P\text{-wave})/\Gamma_{\text{total}}$				Γ_9/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.14 ± 0.05	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel	
$\Gamma(\Delta\bar{K}, F\text{-wave})/\Gamma_{\text{total}}$				Γ_{10}/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.08 ± 0.02	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel	
$\Gamma(N\bar{K}^*(892), S=1/2, F\text{-wave})/\Gamma_{\text{total}}$				Γ_{11}/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.08 ± 0.03	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel	

$\Gamma(N\bar{K}^*(892), S=3/2, F\text{-wave})/\Gamma_{\text{total}}$			Γ_{12}/Γ
VALUE	DOCUMENT ID	TECN	COMMENT
0.26 ± 0.05	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

$\Sigma(2230)$ REFERENCES

SARANTSEV 19	EPJ A55 180	A.V. Sarantsev <i>et al.</i>	(BONN, PNPI)
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