

$\Sigma(2160) 1/2^-$  $I(J^P) = 1(\frac{1}{2}^-)$  Status: \*

OMITTED FROM SUMMARY TABLE

 $\Sigma(2160)$  POLE POSITION

## REAL PART

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
$2158 \pm 25$	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

## -2×IMAGINARY PART

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
$300^{+300}_{-60}$	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

 $\Sigma(2160)$  POLE RESIDUESNormalized residue in  $N\bar{K} \rightarrow \Sigma(2160) \rightarrow N\bar{K}$ 

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
$0.29 \pm 0.08$	$-20 \pm 35$	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

Normalized residue in  $N\bar{K} \rightarrow \Sigma(2160) \rightarrow \Sigma\pi$ 

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
$0.14 \pm 0.04$	$-5 \pm 35$	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

Normalized residue in  $N\bar{K} \rightarrow \Sigma(2160) \rightarrow \Lambda\pi$ 

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
$0.39 \pm 0.08$	$85 \pm 25$	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

Normalized residue in  $N\bar{K} \rightarrow \Sigma(2160) \rightarrow \Xi K$ 

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
$0.05 \pm 0.02$	$-85 \pm 35$	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

Normalized residue in  $N\bar{K} \rightarrow \Sigma(2160) \rightarrow \Lambda(1520)\pi$ 

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
$0.025 \pm 0.015$		SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

Normalized residue in  $N\bar{K} \rightarrow \Sigma(2160) \rightarrow \Sigma(1385)\pi$ 

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
$0.03 \pm 0.02$		SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

Normalized residue in  $N\bar{K} \rightarrow \Sigma(2160) \rightarrow \Delta\bar{K}$ 

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
$0.035 \pm 0.02$	$-30 \pm 40$	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

Normalized residue in  $N\bar{K} \rightarrow \Sigma(2160) \rightarrow N\bar{K}^*(892), S\text{-wave}$ 

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
$0.09 \pm 0.03$	$-40 \pm 50$	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

**Normalized residue in  $N\bar{K} \rightarrow \Sigma(2160) \rightarrow N\bar{K}^*(892)$ ,  $D$ -wave**

<u>MODULUS</u>	<u>PHASE (<math>^\circ</math>)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>0.04±0.03</b>		SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

 **$\Sigma(2160)$  MASS**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>2105±50 OUR AVERAGE</b>	Error includes scale factor of 3.4.		
2165±23	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel
2060±20	ZHANG 13A	DPWA	$\bar{K}N$ multichannel

 **$\Sigma(2160)$  WIDTH**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>313<math>^{+120}_{-50}</math> OUR AVERAGE</b>			
320 $^{+300}_{-60}$	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel
300±134	ZHANG 13A	DPWA	$\bar{K}N$ multichannel

 **$\Sigma(2160)$  DECAY MODES**

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $N\bar{K}$	(29 ± 7 ) %
$\Gamma_2$ $\Sigma\pi$	( 7.0± 2.0) %
$\Gamma_3$ $\Lambda\pi$	(54 ±12 ) %
$\Gamma_4$ $N\bar{K}^*(892)$ , $S$ -wave	( 3.0± 1.0) %
$\Gamma_5$ $N\bar{K}^*(892)$ , $D$ -wave	

 **$\Sigma(2160)$  BRANCHING RATIOS**

<b><math>\Gamma(N\bar{K})/\Gamma_{\text{total}}</math></b>				<b><math>\Gamma_1/\Gamma</math></b>
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>0.29±0.07</b>	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel	
<b><math>\Gamma(\Sigma\pi)/\Gamma_{\text{total}}</math></b>				<b><math>\Gamma_2/\Gamma</math></b>
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>0.07±0.02</b>	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel	
<b><math>\Gamma(\Lambda\pi)/\Gamma_{\text{total}}</math></b>				<b><math>\Gamma_3/\Gamma</math></b>
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>0.54±0.12</b>	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel	
<b><math>\Gamma(N\bar{K}^*(892), S\text{-wave})/\Gamma_{\text{total}}</math></b>				<b><math>\Gamma_4/\Gamma</math></b>
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>0.03±0.01</b>	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel	

$\Gamma(N\bar{K}^*(892), D\text{-wave})/\Gamma_{\text{total}}$   $\Gamma_5/\Gamma$

VALUE DOCUMENT ID TECN COMMENT

• • • We do not use the following data for averages, fits, limits, etc. • • •

~ 0.01 SARANTSEV 19 DPWA  $\bar{K}N$  multichannel

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### $\Sigma(2160)$ REFERENCES

SARANTSEV 19 EPJ A55 180 A.V. Sarantsev *et al.* (BONN, PNPI)  
ZHANG 13A PR C88 035205 H. Zhang *et al.* (KSU)

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