

$\Sigma(2100) 7/2^-$ $I(J^P) = 1(\frac{7}{2}^-)$ Status: *

OMITTED FROM SUMMARY TABLE

 $\Sigma(2100)$ POLE POSITION

REAL PART

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

-2×IMAGINARY PART

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

 $\Sigma(2100)$ POLE RESIDUESNormalized residue in $N\bar{K} \rightarrow \Sigma(2100) \rightarrow N\bar{K}$

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

Normalized residue in $N\bar{K} \rightarrow \Sigma(2100) \rightarrow \Sigma\pi$

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

Normalized residue in $N\bar{K} \rightarrow \Sigma(2100) \rightarrow \Lambda\pi$

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

Normalized residue in $N\bar{K} \rightarrow \Sigma(2100) \rightarrow \Xi K$

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

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

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

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

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

Normalized residue in $N\bar{K} \rightarrow \Sigma(2100) \rightarrow \Sigma(1385)\pi, D\text{-wave}$

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

Normalized residue in $N\bar{K} \rightarrow \Sigma(2100) \rightarrow \Sigma(1385)\pi, G\text{-wave}$

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

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

<u>MODULUS</u>	<u>PHASE ($^\circ$)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.04±0.02	75 ± 35	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

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

<u>MODULUS</u>	<u>PHASE ($^\circ$)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.08±0.04	20 ± 50	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

 $\Sigma(2100)$ MASS

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

 $\Sigma(2100)$ WIDTH

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

 $\Sigma(2100)$ DECAY MODES

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

 $\Sigma(2100)$ BRANCHING RATIOS

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

<u>$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\bar{K} \rightarrow \Sigma(2100) \rightarrow \Lambda\pi$</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	<u>$(\Gamma_1\Gamma_2)^{1/2}/\Gamma$</u>
-0.07±0.02	BARBARO-...	70	DPWA $K^- p \rightarrow \Lambda\pi^0$	

$(\Gamma_i \Gamma_f)^{1/2} / \Gamma_{\text{total}}$ in $N\bar{K} \rightarrow \Sigma(2100) \rightarrow \Sigma \pi$				$(\Gamma_1 \Gamma_3)^{1/2} / \Gamma$
VALUE	DOCUMENT ID	TECN	COMMENT	
$+0.13 \pm 0.02$	BARBARO-... 70	DPWA	$K^- p \rightarrow \Sigma \pi$	
$\Gamma(N\bar{K}) / \Gamma_{\text{total}}$				Γ_1 / Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.08 ± 0.02	SARANTSEV 19	DPWA	$\bar{K} N$ multichannel	
$\Gamma(\Lambda\pi) / \Gamma_{\text{total}}$				Γ_2 / Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.015 ± 0.01	SARANTSEV 19	DPWA	$\bar{K} N$ multichannel	
$\Gamma(\Sigma\pi) / \Gamma_{\text{total}}$				Γ_3 / Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.02 ± 0.01	SARANTSEV 19	DPWA	$\bar{K} N$ multichannel	
$\Gamma(\Xi K) / \Gamma_{\text{total}}$				Γ_4 / Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
<0.01	SARANTSEV 19	DPWA	$\bar{K} N$ multichannel	
$\Gamma(\Sigma(1385)\pi, D\text{-wave}) / \Gamma_{\text{total}}$				Γ_5 / Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.12 ± 0.06	SARANTSEV 19	DPWA	$\bar{K} N$ multichannel	
$\Gamma(\Sigma(1385)\pi, G\text{-wave}) / \Gamma_{\text{total}}$				Γ_6 / Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
~ 0.01	SARANTSEV 19	DPWA	$\bar{K} N$ multichannel	
$\Gamma(\Lambda(1520)\pi, F\text{-wave}) / \Gamma_{\text{total}}$				Γ_7 / Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.01 ± 0.01	SARANTSEV 19	DPWA	$\bar{K} N$ multichannel	
$\Gamma(\Lambda(1520)\pi, H\text{-wave}) / \Gamma_{\text{total}}$				Γ_8 / Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
~ 0	SARANTSEV 19	DPWA	$\bar{K} N$ multichannel	
$\Gamma(N\bar{K}^*(892), S=3/2, D\text{-wave}) / \Gamma_{\text{total}}$				Γ_9 / Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.06 ± 0.03	SARANTSEV 19	DPWA	$\bar{K} N$ multichannel	
$\Gamma(\Delta\bar{K}, G\text{-wave}) / \Gamma_{\text{total}}$				Γ_{10} / Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.01 ± 0.01	SARANTSEV 19	DPWA	$\bar{K} N$ multichannel	

Σ(2100) REFERENCES

SARANTSEV 19	EPJ A55 180	A.V. Sarantsev <i>et al.</i>	(BONN, PNPI)
BARBARO-... 70	Duke Conf. 173	A. Barbaro-Galtieri	(LRL) IJP
	Hyperon Resonances, 1970		