

$$\Sigma(1900) \ 1/2^-$$

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

NODE=B167

OMITTED FROM SUMMARY TABLE

 $\Sigma(1900)$ POLE POSITION

NODE=B167225

REAL PART

VALUE	DOCUMENT ID	TECN	COMMENT
1936±10	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

NODE=B167A11
NODE=B167A11**−2×IMAGINARY PART**

VALUE	DOCUMENT ID	TECN	COMMENT
150±25	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

NODE=B167A10
NODE=B167A10 **$\Sigma(1900)$ POLE RESIDUES**

NODE=B167250

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

NODE=B167250

Normalized residue in $N\bar{K} \rightarrow \Sigma(1900) \rightarrow N\bar{K}$

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
0.45±0.09	90 ± 25	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

NODE=B167A00
NODE=B167A00**Normalized residue in $N\bar{K} \rightarrow \Sigma(1900) \rightarrow \Sigma\pi$**

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
0.38±0.08	95 ± 20	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

NODE=B167A01
NODE=B167A01**Normalized residue in $N\bar{K} \rightarrow \Sigma(1900) \rightarrow \Sigma\eta$**

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
0.03±0.01	20 ± 20	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

NODE=B167A02
NODE=B167A02**Normalized residue in $N\bar{K} \rightarrow \Sigma(1900) \rightarrow \Lambda\pi$**

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
0.14±0.05	−160 ± 50	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

NODE=B167A03
NODE=B167A03**Normalized residue in $N\bar{K} \rightarrow \Sigma(1900) \rightarrow \Xi K$**

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
0.08±0.05	75 ± 25	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

NODE=B167A04
NODE=B167A04**Normalized residue in $N\bar{K} \rightarrow \Sigma(1900) \rightarrow \Sigma(1385)\pi$**

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
0.16±0.05	40 ± 30	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

NODE=B167A06
NODE=B167A06**Normalized residue in $N\bar{K} \rightarrow \Sigma(1900) \rightarrow \Lambda(1520)\pi$**

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
0.04±0.02	−25 ± 40	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

NODE=B167A05
NODE=B167A05**Normalized residue in $N\bar{K} \rightarrow \Sigma(1900) \rightarrow \Delta\bar{K}$**

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
0.11±0.04	60 ± 30	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

NODE=B167A07
NODE=B167A07**Normalized residue in $N\bar{K} \rightarrow \Sigma(1900) \rightarrow N\bar{K}^*(892), S=1/2, S\text{-wave}$**

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
0.17±0.06	50 ± 50	SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

NODE=B167A08
NODE=B167A08**Normalized residue in $N\bar{K} \rightarrow \Sigma(1900) \rightarrow N\bar{K}^*(892), S=3/2, D\text{-wave}$**

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
0.05±0.04		SARANTSEV 19	DPWA	$\bar{K}N$ multichannel

NODE=B167A09
NODE=B167A09 **$\Sigma(1900)$ MASS**

NODE=B167M

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
1900 to 1950 (≈ 1925) OUR ESTIMATE			
1938 $\pm$ 12	SARANTSEV	19	DPWA $\bar{K}N$ multichannel
1900 $\pm$ 21	ZHANG	13A	DPWA $\bar{K}N$ multichannel
1944 $\pm$ 15	GOPAL	80	DPWA $\bar{K}N \rightarrow \bar{K}N$
1755 or 1834	¹ MARTIN	77	DPWA $\bar{K}N$ multichannel
2004 $\pm$ 40	VANHORN	75	DPWA $K^- p \rightarrow \Lambda \pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
1955 $\pm$ 15	GOPAL	77	DPWA $\bar{K}N$ multichannel
¹ The two MARTIN 77 values are from a T-matrix pole and from a Breit-Wigner fit.			

NODE=B167M

→ UNCHECKED ←
OCCUR=2

NODE=B167M;LINKAGE=E

 $\Sigma(1900)$ WIDTH

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
140 to 190 (≈ 165) OUR ESTIMATE			
155 $\pm$ 30	SARANTSEV	19	DPWA $\bar{K}N$ multichannel
191 $\pm$ 47	ZHANG	13A	DPWA $\bar{K}N$ multichannel
215 $\pm$ 25	GOPAL	80	DPWA $\bar{K}N \rightarrow \bar{K}N$
413 or 450	¹ MARTIN	77	DPWA $\bar{K}N$ multichannel
116 $\pm$ 40	VANHORN	75	DPWA $K^- p \rightarrow \Lambda \pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
170 $\pm$ 40	GOPAL	77	DPWA $\bar{K}N$ multichannel
¹ The two MARTIN 77 values are from a T-matrix pole and from a Breit-Wigner fit.			

NODE=B167W

NODE=B167W

→ UNCHECKED ←
OCCUR=2

NODE=B167W;LINKAGE=E

 $\Sigma(1900)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $N\bar{K}$	0.40 to 0.70 (≈ 0.55)
Γ_2 $\Sigma\pi$	0.10 to 0.40 (≈ 0.25)
Γ_3 $\Sigma\eta$	(1.0 $\pm$ 1.0) %
Γ_4 $\Lambda\pi$	(6.0 $\pm$ 2.0) %
Γ_5 ΞK	(3.0 $\pm$ 2.0) %
Γ_6 $\Sigma(1385)\pi$	(7.0 $\pm$ 3.0) %
Γ_7 $\Lambda(1520)\pi$	
Γ_8 $\Delta\bar{K}$	(2.5 $\pm$ 1.0) %
Γ_9 $N\bar{K}^*(892)$, $S=1/2$, S -wave	(7.0 $\pm$ 3.0) %
Γ_{10} $N\bar{K}^*(892)$, $S=3/2$, D -wave	

DESIG=1

DESIG=2

DESIG=3

DESIG=4

DESIG=5

DESIG=7

DESIG=6

DESIG=8

DESIG=9

DESIG=10

NODE=B167215;NODE=B167

 $\Sigma(1900)$ BRANCHING RATIOS

$\Gamma(N\bar{K})/\Gamma_{\text{total}}$	Γ_1/Γ		
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.40 to 0.70 (≈ 0.55) OUR ESTIMATE			
0.45 $\pm$ 0.09	SARANTSEV	19	DPWA $\bar{K}N$ multichannel
0.67 $\pm$ 0.17	ZHANG	13A	DPWA $\bar{K}N$ multichannel
$\Gamma(\Sigma\pi)/\Gamma_{\text{total}}$	Γ_2/Γ		
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.10 to 0.40 (≈ 0.25) OUR ESTIMATE			
0.33 $\pm$ 0.07	SARANTSEV	19	DPWA $\bar{K}N$ multichannel
0.10 $\pm$ 0.05	ZHANG	13A	DPWA $\bar{K}N$ multichannel
$\Gamma(\Sigma\eta)/\Gamma_{\text{total}}$	Γ_3/Γ		
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.01$\pm$0.01	SARANTSEV	19	DPWA $\bar{K}N$ multichannel
$\Gamma(\Lambda\pi)/\Gamma_{\text{total}}$	Γ_4/Γ		
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.06$\pm$0.02	SARANTSEV	19	DPWA $\bar{K}N$ multichannel
$\Gamma(\Xi K)/\Gamma_{\text{total}}$	Γ_5/Γ		
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.03$\pm$0.02	SARANTSEV	19	DPWA $\bar{K}N$ multichannel

NODE=B167220

NODE=B167R01

NODE=B167R01

→ UNCHECKED ←

NODE=B167R02

NODE=B167R02

→ UNCHECKED ←

NODE=B167R00

NODE=B167R00

NODE=B167R03

NODE=B167R03

NODE=B167R04

NODE=B167R04

$\Gamma(\Sigma(1385)\pi)/\Gamma_{\text{total}}$				Γ_6/Γ	NODE=B167R05 NODE=B167R05
VALUE	DOCUMENT ID	TECN	COMMENT		
0.07±0.03	SARANTSEV 19	DPWA	$\bar{K} N$ multichannel		
$\Gamma(\Lambda(1520)\pi)/\Gamma_{\text{total}}$				Γ_7/Γ	NODE=B167R06 NODE=B167R06
VALUE	DOCUMENT ID	TECN	COMMENT		
<0.01	SARANTSEV 19	DPWA	$\bar{K} N$ multichannel		
$\Gamma(\Delta\bar{K})/\Gamma_{\text{total}}$				Γ_8/Γ	NODE=B167R07 NODE=B167R07
VALUE	DOCUMENT ID	TECN	COMMENT		
0.025±0.010	SARANTSEV 19	DPWA	$\bar{K} N$ multichannel		
$\Gamma(N\bar{K}^*(892), S=1/2, S\text{-wave})/\Gamma_{\text{total}}$				Γ_9/Γ	NODE=B167R08 NODE=B167R08
VALUE	DOCUMENT ID	TECN	COMMENT		
0.07±0.03	SARANTSEV 19	DPWA	$\bar{K} N$ multichannel		
$\Gamma(N\bar{K}^*(892), S=3/2, D\text{-wave})/\Gamma_{\text{total}}$				Γ_{10}/Γ	NODE=B167R09 NODE=B167R09
VALUE	DOCUMENT ID	TECN	COMMENT		
<0.01	SARANTSEV 19	DPWA	$\bar{K} N$ multichannel		

Σ(1900) REFERENCES

SARANTSEV 19	EPJ A55 180	A.V. Sarantsev <i>et al.</i>	(BONN, PNPI)	NODE=B167
ZHANG 13A	PR C88 035205	H. Zhang <i>et al.</i>	(KSU)	REFID=59986
GOPAL 80	Toronto Conf. 159	G.P. Gopal	(RHEL)	REFID=55441
GOPAL 77	NP B119 362	G.P. Gopal <i>et al.</i>	(LOIC, RHEL)	REFID=31755
MARTIN 77	NP B127 349	B.R. Martin, M.K. Pidcock, R.G. Moorhouse	(LOUC+)	REFID=31750
VANHORN 75	NP B87 145	A.J. van Horn	(LBL)	REFID=31762
				REFID=32093