

$\Sigma(2010) 3/2^-$ $I(J^P) = 1(3/2^-)$ Status: *

OMITTED FROM SUMMARY TABLE

 $\Sigma(2010)$ POLE POSITION**REAL PART**

| VALUE (MeV) | DOCUMENT ID | TECN | COMMENT |
|----------------|--------------|------|-------------------------|
| 1995±12 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel |

-2×IMAGINARY PART

| VALUE (MeV) | DOCUMENT ID | TECN | COMMENT |
|---------------|--------------|------|-------------------------|
| 175±24 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel |

 $\Sigma(2010)$ POLE RESIDUESThe normalized residue is the residue divided by $\Gamma_{pole}/2$.**Normalized residue in $N\bar{K} \rightarrow \Sigma(2010) \rightarrow N\bar{K}$**

| MODULUS | PHASE (°) | DOCUMENT ID | TECN | COMMENT |
|------------------|------------------|--------------|------|-------------------------|
| 0.07±0.03 | -115 ± 25 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel |

Normalized residue in $N\bar{K} \rightarrow \Sigma(2010) \rightarrow \Sigma\pi$

| MODULUS | PHASE (°) | DOCUMENT ID | TECN | COMMENT |
|------------------|-----------------|--------------|------|-------------------------|
| 0.04±0.02 | 130 ± 22 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel |

Normalized residue in $N\bar{K} \rightarrow \Sigma(2010) \rightarrow \Lambda\pi$

| MODULUS | PHASE (°) | DOCUMENT ID | TECN | COMMENT |
|------------------|-----------------|--------------|------|-------------------------|
| 0.06±0.03 | 170 ± 25 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel |

Normalized residue in $N\bar{K} \rightarrow \Sigma(2010) \rightarrow \Xi K$

| MODULUS | PHASE (°) | DOCUMENT ID | TECN | COMMENT |
|------------------|------------------|--------------|------|-------------------------|
| 0.04±0.02 | -120 ± 45 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel |

Normalized residue in $N\bar{K} \rightarrow \Sigma(2010) \rightarrow \Lambda(1520)\pi, P\text{-wave}$

| MODULUS | PHASE (°) | DOCUMENT ID | TECN | COMMENT |
|------------------|----------------|--------------|------|-------------------------|
| 0.03±0.02 | 80 ± 35 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel |

Normalized residue in $N\bar{K} \rightarrow \Sigma(2010) \rightarrow \Lambda(1520)\pi, F\text{-wave}$

| MODULUS | PHASE (°) | DOCUMENT ID | TECN | COMMENT |
|------------------|-----------------|--------------|------|-------------------------|
| 0.08±0.05 | 150 ± 65 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel |

Normalized residue in $N\bar{K} \rightarrow \Sigma(2010) \rightarrow \Sigma(1385)\pi, P\text{-wave}$

| VALUE | DOCUMENT ID | TECN | COMMENT |
|------------------------|--------------|------|-------------------------|
| 0.04±0.02@25±45 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel |

Normalized residue in $N\bar{K} \rightarrow \Sigma(2010) \rightarrow \Sigma(1385)\pi, F\text{-wave}$

| VALUE | DOCUMENT ID | TECN | COMMENT |
|------------------|--------------|------|-------------------------|
| 0.02±0.02 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel |

Normalized residue in $N\bar{K} \rightarrow \Sigma(2010) \rightarrow \Delta\bar{K}$, S-wave

| <u>MODULUS</u> | <u>PHASE ($^\circ$)</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> |
|-----------------|------------------------------------|--------------------|-------------|-------------------------|
| 0.08 ± 0.04 | 0 ± 30 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel |

Normalized residue in $N\bar{K} \rightarrow \Sigma(2010) \rightarrow \Delta\bar{K}$, D-wave

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

Normalized residue in $N\bar{K} \rightarrow \Sigma(2010) \rightarrow N\bar{K}^*(892)$, S-wave

| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> |
|---------------------------------------|--------------------|-------------|-------------------------|
| $0.12 \pm 0.03 @ -60 \text{ to } +60$ | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel |

Normalized residue in $N\bar{K} \rightarrow \Sigma(2010) \rightarrow N\bar{K}^*(892)$, S=1/2, D-wave

| <u>MODULUS</u> | <u>PHASE ($^\circ$)</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> |
|-----------------|------------------------------------|--------------------|-------------|-------------------------|
| 0.08 ± 0.04 | 55 ± 60 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel |

Normalized residue in $N\bar{K} \rightarrow \Sigma(2010) \rightarrow N\bar{K}^*(892)$, 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 | 15 ± 60 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel |

 $\Sigma(2010)$ MASS

| <u>VALUE (MeV)</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> |
|--------------------|--------------------|-------------|-------------------------|
| 2005 ± 14 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel |

 $\Sigma(2010)$ WIDTH

| <u>VALUE (MeV)</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> |
|--------------------|--------------------|-------------|-------------------------|
| 178 ± 23 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel |

 $\Sigma(2010)$ DECAY MODES

| Mode | Fraction (Γ_i/Γ) |
|---|--------------------------------|
| Γ_1 $N\bar{K}$ | (7.0 ± 3.0) % |
| Γ_2 $\Lambda\pi$ | (5.0 ± 2.0) % |
| Γ_3 $\Sigma\pi$ | (3.0 ± 2.0) % |
| Γ_4 ΞK | (3.0 ± 2.0) % |
| Γ_5 $\Sigma(1385)\pi$, P-wave | (3.0 ± 2.0) % |
| Γ_6 $\Sigma(1385)\pi$, F-wave | (2.0 ± 2.0) % |
| Γ_7 $\Lambda(1520)\pi$, P-wave | (2.0 ± 2.0) % |
| Γ_8 $\Lambda(1520)\pi$, F-wave | (12 ± 6) % |
| Γ_9 $\Delta\bar{K}$, S-wave | (11 ± 5) % |
| Γ_{10} $\Delta\bar{K}$, D-wave | (1.0 ± 1.0) % |
| Γ_{11} $N\bar{K}^*(892)$, S=1/2, S-wave | (27 ± 7) % |
| Γ_{12} $N\bar{K}^*(892)$, S=1/2, D-wave | (13 ± 6) % |
| Γ_{13} $N\bar{K}^*(892)$, S=3/2, D-wave | (13 ± 6) % |

$\Sigma(2010)$ BRANCHING RATIOSSee "Sign conventions for resonance couplings" in the Note on Λ and Σ Resonances.

| $\Gamma(N\bar{K})/\Gamma_{\text{total}}$ | | | | Γ_1/Γ |
|---|--------------------|-------------|-------------------------|----------------------|
| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> | |
| 0.07±0.03 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel | |
| $\Gamma(\Lambda\pi)/\Gamma_{\text{total}}$ | | | | Γ_2/Γ |
| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> | |
| 0.05±0.02 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel | |
| $\Gamma(\Sigma\pi)/\Gamma_{\text{total}}$ | | | | Γ_3/Γ |
| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> | |
| 0.03±0.02 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel | |
| $\Gamma(\Xi K)/\Gamma_{\text{total}}$ | | | | Γ_4/Γ |
| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> | |
| 0.03±0.02 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel | |
| $\Gamma(\Sigma(1385)\pi, P\text{-wave})/\Gamma_{\text{total}}$ | | | | Γ_5/Γ |
| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> | |
| 0.03±0.02 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel | |
| $\Gamma(\Sigma(1385)\pi, F\text{-wave})/\Gamma_{\text{total}}$ | | | | Γ_6/Γ |
| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> | |
| 0.02±0.02 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel | |
| $\Gamma(\Lambda(1520)\pi, P\text{-wave})/\Gamma_{\text{total}}$ | | | | Γ_7/Γ |
| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> | |
| 0.02±0.02 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel | |
| $\Gamma(\Lambda(1520)\pi, F\text{-wave})/\Gamma_{\text{total}}$ | | | | Γ_8/Γ |
| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> | |
| 0.12±0.06 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel | |
| $\Gamma(\Delta\bar{K}, S\text{-wave})/\Gamma_{\text{total}}$ | | | | Γ_9/Γ |
| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> | |
| 0.11±0.05 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel | |
| $\Gamma(\Delta\bar{K}, D\text{-wave})/\Gamma_{\text{total}}$ | | | | Γ_{10}/Γ |
| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> | |
| 0.01±0.01 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel | |
| $\Gamma(N\bar{K}^*(892), S=1/2, S\text{-wave})/\Gamma_{\text{total}}$ | | | | Γ_{11}/Γ |
| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> | |
| 0.27±0.07 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel | |

| $\Gamma(N\bar{K}^*(892), S=1/2, D\text{-wave})/\Gamma_{\text{total}}$ | | | | Γ_{12}/Γ |
|---|--------------------|-------------|-------------------------|----------------------|
| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> | |
| 0.13±0.06 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel | |

| $\Gamma(N\bar{K}^*(892), S=3/2, D\text{-wave})/\Gamma_{\text{total}}$ | | | | Γ_{13}/Γ |
|---|--------------------|-------------|-------------------------|----------------------|
| <u>VALUE</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> | |
| 0.13±0.06 | SARANTSEV 19 | DPWA | $\bar{K}N$ multichannel | |

Σ(2010) REFERENCES

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