$\Sigma(1775) \; 5/2^-$ 

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$$I(J^P) = 1(\frac{5}{2})$$
 Status: \*\*\*

Created: 5/30/2017 17:20

Discovered by GALTIERI 63, this resonance plays the same role as cornerstone for isospin-1 analyses in this region as the  $\Lambda(1820)F_{05}$  does in the isospin-0 channel.

For most results published before 1974 (they are now obsolete), see our 1982 edition Physics Letters **111B** 1 (1982).

#### $\Sigma$ (1775) POLE POSITION REAL PART VALUE (MeV) TECN COMMENT <sup>1</sup> KAMANO 15 DPWA Multichannel • • • We do not use the following data for averages, fits, limits, etc. • • • 1759 **ZHANG** 13A DPWA Multichannel <sup>1</sup>From the preferred solution A in KAMANO 15. -2×IMAGINARY PART VALUE (MeV) DOCUMENT ID TECN <sup>1</sup> KAMANO 15 DPWA Multichannel • • • We do not use the following data for averages, fits, limits, etc. • • • **ZHANG** 13A DPWA Multichannel 118 <sup>1</sup>From the preferred solution A in KAMANO 15. $\Sigma$ (1775) POLE RESIDUES The normalized residue is the residue divided by $\Gamma_{pole}/2$ . Normalized residue in $N\overline{K} \rightarrow \Sigma(1775) \rightarrow N\overline{K}$ PHASE (°) DOCUMENT ID TECN COMMENT • • • We do not use the following data for averages, fits, limits, etc. • • • <sup>1</sup> KAMANO 0.371 -3215 DPWA Multichannel <sup>1</sup>From the preferred solution A in KAMANO 15. Normalized residue in $N\overline{K} \rightarrow \Sigma(1775) \rightarrow \Sigma \pi$ DOCUMENT ID TECN COMMENT • • • We do not use the following data for averages, fits, limits, etc. • • • 0.115 -24<sup>1</sup> KAMANO 15 DPWA Multichannel <sup>1</sup>From the preferred solution A in KAMANO 15. Normalized residue in $N\overline{K} \rightarrow \Sigma(1775) \rightarrow \Lambda \pi$ DOCUMENT ID • • • We do not use the following data for averages, fits, limits, etc. • • <sup>1</sup> KAMANO 0.325 157 15 DPWA Multichannel <sup>1</sup>From the preferred solution A in KAMANO 15.

Page 1

Normalized residue in $N\overline{K} \to \Sigma(1775) \to \Sigma(1385)\pi$ , $D$ -wave									
MODULUS	PHASE (°)	DOCUMENT ID	TECN COMMENT						
• • • We do	not use the following	data for averages, fits,	limits, etc. • • •						
0.391	137	<sup>1</sup> KAMANO 15	DPWA Multichannel						
$^{ m 1}$ From the	preferred solution A ir	n KAMANO 15.							
Normalized residue in $N\overline{K} \to \Sigma(1775) \to \Sigma(1385)\pi$ , G-wave									
MODULUS	PHASE (°)	DOCUMENT ID	TECN COMMENT						
• • • We do not use the following data for averages, fits, limits, etc. • •									
0.0129	-58	<sup>1</sup> KAMANO 15	DPWA Multichannel						
$^{ m 1}$ From the	<sup>1</sup> From the preferred solution A in KAMANO 15.								

## **Σ**(1775) MASS

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
1770 to 1780 (≈ 1775) OUR ESTIM	MATE			
1778± 1	ZHANG	13A	DPWA	Multichannel
1778± 5	GOPAL	80	DPWA	$\overline{K}N \rightarrow \overline{K}N$
$1777 \pm 5$	ALSTON	78	DPWA	$\overline{K}N \rightarrow \overline{K}N$
$1774\pm 5$	GOPAL	77	DPWA	$\overline{K}N$ multichannel
$1775 \pm 10$	BAILLON	75	IPWA	$\overline{K}N \rightarrow \Lambda\pi$
$1774 \pm 10$	VANHORN	75	DPWA	$K^- p \rightarrow \Lambda \pi^0$
$1772 \pm 6$	KANE	74	DPWA	$K^- p \rightarrow \Sigma \pi$
• • • We do not use the following of	data for averages	s, fits,	limits, e	tc. • • •
1772 or 1777	<sup>1</sup> MARTIN	77	DPWA	$\overline{K}N$ multichannel
1765	DEBELLEFON	76	IPWA	$K^- p \rightarrow \Lambda \pi^0$
$^{ m 1}$ The two MARTIN 77 values are	from a T-matrix	x pole	and fror	n a Breit-Wigner fit.

## **Σ**(1775) WIDTH

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
105 to 135 (≈ 120) OUR ESTIMA	TE			
131± 3	ZHANG	13A	DPWA	Multichannel
$137\pm10$	GOPAL	80	DPWA	$\overline{K} N \rightarrow \overline{K} N$
$116\pm10$	ALSTON	78	DPWA	$\overline{K} N \rightarrow \overline{K} N$
$130\pm10$	GOPAL	77	DPWA	$\overline{K}N$ multichannel
$125 \pm 15$	BAILLON	75	IPWA	$\overline{K}N \rightarrow \Lambda \pi$
$146 \pm 18$	VANHORN	75	DPWA	$K^- p \rightarrow \Lambda \pi^0$
$154\pm10$	KANE	74	DPWA	$K^- p \rightarrow \Sigma \pi$
• • • We do not use the following	data for averages	s, fits,	limits, e	etc. • • •
102 or 103	$^{ m 1}$ MARTIN	77	DPWA	$\overline{K}N$ multichannel
120	DEBELLEFON	l 76	IPWA	$K^- p \rightarrow \Lambda \pi^0$
$^{ m 1}$ The two MARTIN 77 values ar	e from a T-matri	x pole	and from	m a Breit-Wigner fit.

### $\Sigma$ (1775) DECAY MODES

	Mode	Fraction $(\Gamma_i/\Gamma)$
$\overline{\Gamma_1}$	NK	37–43%
$\Gamma_2$	$\Lambda\pi$	14–20%
$\Gamma_3$	$\Sigma \pi$	2–5%
$\Gamma_4$	$\Sigma(1385)\pi$	8–12%
$\Gamma_5$	$\Sigma(1385)\pi$ , $ extit{D}$ -wave	
$\Gamma_6$	$\Sigma(1385)\pi$ , $ extit{D}$ -wave	
$\Gamma_7$	$\Sigma(1385)\pi$ , $ extit{ G}$ -wave	
Γ <sub>8</sub>	$arLambda(1520)\pi$ , $ extit{P} ext{-wave}$	17–23%
$\Gamma_9$	$\sum \pi  \pi$	
$\Gamma_{10}$	$\Delta(1232)\overline{K}$ , $ extit{D}$ -wave	
$\Gamma_{11}$	$N\overline{K}^*(892)$ , $S=1/2$	
$\Gamma_{12}$	$N\overline{K}^*$ (892), $S=1/2$ , $D$ -wave	
$\Gamma_{13}$	$N\overline{K}^*(892)$ , $S=3/2$ , $D$ -wave	
Γ <sub>14</sub>	$N\overline{K}^*(892)$ , $S=3/2$ , $G$ -wave	

### CONSTRAINED FIT INFORMATION

An overall fit to 7 branching ratios uses 18 measurements and one constraint to determine 5 parameters. The overall fit has a  $\chi^2=363.4$  for 14 degrees of freedom.

The following off-diagonal array elements are the correlation coefficients  $\left\langle \delta x_i \delta x_j \right\rangle / (\delta x_i \cdot \delta x_j)$ , in percent, from the fit to the branching fractions,  $x_i \equiv \Gamma_i / \Gamma_{\text{total}}$ . The fit constrains the  $x_i$  whose labels appear in this array to sum to one.

### $\Sigma$ (1775) BRANCHING RATIOS

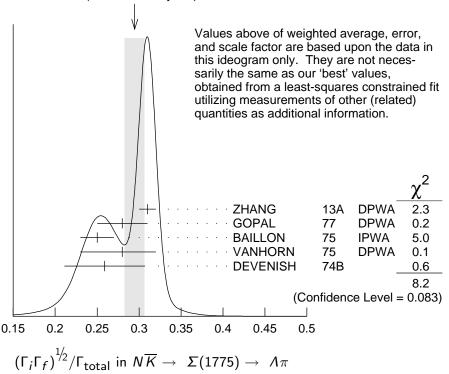
See "Sign conventions for resonance couplings" in the Note on  $\Lambda$  and  $\Sigma$  Resonances. Also, the errors quoted do not include uncertainties due to the parametrization used in the partial-wave analyses and are thus too small.

$\Gamma(N\overline{K})/\Gamma_{\text{total}}$	DOCUMENT ID		TECN	COMMENT	Γ <sub>1</sub> /Γ
<b>0.37</b> to <b>0.43 OUR ESTIMATE</b>	DOCUMENT ID		<u>TECN</u>	COMMENT	
0.421±0.020 OUR FIT Error inclu	udes scale factor	of 2 F	;		
0.398±0.009 OUR AVERAGE	ades seale lactor	0. 2.0	•		
0.40 ±0.01	ZHANG	13A	DPWA	Multichannel	
$0.40 \pm 0.02$	GOPAL			$\overline{K}N \rightarrow \overline{K}N$	
$0.37 \pm 0.03$	ALSTON			$\overline{K}N \rightarrow \overline{K}N$	
• • • We do not use the following				etc. • • •	
0.402	<sup>1</sup> KAMANO	15	DPWA	Multichannel	
$0.41 \pm 0.03$				See GOPAL 80	
	<sup>2</sup> MARTIN	77	DPWA	$\overline{K}N$ multichannel	
$^{ m 1}$ From the preferred solution A in					
<sup>2</sup> The two MARTIN 77 values are		x pole	and froi	m a Breit-Wigner f	it.
$\Gamma(\Lambda\pi)/\Gamma_{total}$					Γ <sub>2</sub> /Γ
	DOCUMENT ID		TECN	COMMENT	. 2/ .
• • • We do not use the following					
-	$^{1}$ KAMANO			Multichannel	
		13	DIWA	Widiticilarine	
$^{ m 1}$ From the preferred solution A in	i KAMANO 15.				
$\Gamma(\Lambda\pi)/\Gamma(N\overline{K})$				1	$\Gamma_2/\Gamma_1$
	DOCUMENT ID		TECN		2/11
VALUE  0.48±0.06 OUR FIT Error include			ILCIV	COMMENT	
0.33±0.05	UHLIG		НВС	$K^-p$ 0.9 GeV/ $c$	
$\Gamma(\Sigma\pi)/\Gamma_{ m total}$					Г <sub>3</sub> /Г
VALUE	DOCUMENT ID		TECN	COMMENT	. 3/ .
• • • We do not use the following					
				Multichannel	
	_	13	DIWA	withtitianner	
<sup>1</sup> From the preferred solution A in	n KAMANO 15.				
$\Gamma(\Sigma(1385)\pi)/\Gamma(N\overline{K})$				İ	$\Gamma_4/\Gamma_1$
VALUE	DOCUMENT ID		TECN		<b>-</b> /- 1
0.79±0.11 OUR FIT Error include			1201	COMMENT	
0.25±0.09	UHLIG	67	HBC	$K^- p \ 0.9 \ \text{GeV}/c$	
0.20 2 0.00	011210	٠.		μ σισ σσιγσ	
$\Gamma(\Sigma(1385)\pi, D$ -wave $)/\Gamma_{total}$					$\Gamma_6/\Gamma$
VALUE	DOCUMENT ID		TECN	COMMENT	
• • • We do not use the following	<u>-</u>			<u> </u>	
	$^{1}$ KAMANO	15		Multichannel	
		10	אייט	iviuiticiiaiiilei	
$^{ m 1}$ From the preferred solution A in	n KAMANO 15.				

$\Gamma(\Sigma(1385)\pi, G\text{-wave})/\Gamma_{\text{total}}$	DOCUMENT ID		TECN	COMMENT	$\Gamma_7/\Gamma$
				COMMENT	
not seen	<sup>1</sup> KAMANO	15		Multichannel	
<sup>1</sup> From the preferred solution A in		10	DI W	Widicienamie	
- From the preferred solution A in	n KAMANO 15.				
$\Gamma(\Lambda(1520)\pi, P\text{-wave})/\Gamma(N\overline{K})$	DOCUMENT ID		TFCN	COMMENT	$\Gamma_8/\Gamma_1$
				<u></u>	
<b>0.053</b> <sup>+</sup> 0.080 <b>OUR FIT</b> Error incl	udes scale factor	of 11	.8.		
$0.28 \pm 0.05$	UHLIG	67	HBC	K <sup>−</sup> p 0.9 GeV	/c
$\Gamma(\Sigma\pi\pi)/\Gamma_{total}$	DOCUMENT ID		TECN	COMMENT	Г9/Г
VALUE	DOCUMENT ID				
• • • We do not use the following	-				
0.12	<sup>1</sup> ARMENTERO				
$^{1}$ For about $3/4$ of this, the $\Sigma\pi$ s rest, the $\Sigma\pi$ has $I=1$ , which $\Sigma(1385)\pi$ rate, as seen in $\Lambda\pi\pi$	is about what is				
$\Gamma(N\overline{K}^*(892), S=1/2, D$ -wave)	) / [total				$\Gamma_{12}/\Gamma$
VALUE	<u>DOCUMENT ID</u>		TECN	COMMENT	. 12/ .
• • We do not use the following	·				
not seen	<sup>1</sup> KAMANO	15		Multichannel	
$^{ m 1}$ From the preferred solution A in	n KAMANO 15				
— —	110 (10) (100 15)				
$\Gamma(N\overline{K}^*(892), S=3/2, D-wave)$	) / [				Г., /Г
	// · total				Γ <sub>13</sub> /Γ
VALUE	DOCUMENT ID			COMMENT	13/1
	DOCUMENT ID	s, fits,	limits, e	etc. • •	13/1
VALUE	DOCUMENT ID		limits, e		13/1
• • • We do not use the following	DOCUMENT ID data for averages 1 KAMANO	s, fits,	limits, e	etc. • •	13/1
• • • We do not use the following 0.003	DOCUMENT ID data for averages  1 KAMANO  1 KAMANO 15.  / Γ <sub>total</sub>	s, fits, 15	limits, 6	etc. • • • Multichannel	Γ <sub>14</sub> /Γ
VALUE  • • • We do not use the following 0.003 <sup>1</sup> From the preferred solution A in Γ(N K*(892), S=3/2, G-wave)  VALUE	DOCUMENT ID  data for averages  KAMANO  KAMANO 15.  //  //  total  DOCUMENT ID	s, fits, 15	limits, e	etc. • • • Multichannel  COMMENT	
VALUE  • • • We do not use the following 0.003  ¹ From the preferred solution A in  Γ(NK*(892), S=3/2, G-wave)  VALUE  • • • We do not use the following	DOCUMENT ID  data for average:  1 KAMANO  1 KAMANO 15.  // Lotal  DOCUMENT ID  data for average:	s, fits, 15 s, fits,	imits, e	Multichannel  COMMENT  ctc. • • •	
VALUE  • • • We do not use the following 0.003 <sup>1</sup> From the preferred solution A in Γ(N K* (892), S=3/2, G-wave)  VALUE  • • • We do not use the following not seen	DOCUMENT ID  data for averages  KAMANO  KAMANO 15.  // Lotal  DOCUMENT ID  data for averages  KAMANO	s, fits, 15 s, fits,	imits, e	etc. • • • Multichannel  COMMENT	
VALUE  • • • We do not use the following 0.003 <sup>1</sup> From the preferred solution A in Γ(NK*(892), S=3/2, G-wave)  VALUE  • • • We do not use the following not seen <sup>1</sup> From the preferred solution A in the preferred solution A	DOCUMENT ID  data for averages  KAMANO  KAMANO 15.  //\(\Gamma_{\text{total}}\)  COCUMENT ID  data for averages  KAMANO  KAMANO  KAMANO 15.	s, fits, 15 s, fits,	imits, e	COMMENT etc. • • • Multichannel	Γ <sub>14</sub> /Γ
value  • • • We do not use the following 0.003 <sup>1</sup> From the preferred solution A in $\Gamma(N\overline{K}^*(892), S=3/2, G\text{-wave})$ value  • • • We do not use the following not seen <sup>1</sup> From the preferred solution A in $\Gamma(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\overline{K} \to \Sigma(11)$	DOCUMENT ID  data for average:  KAMANO  KAMANO 15.  // Lotal  DOCUMENT ID  data for average:  KAMANO  KAMANO  KAMANO  KAMANO  KAMANO  KAMANO  KAMANO  KAMANO	s, fits, 15 s, fits, 15	Iimits, e DPWA  TECN Iimits, e DPWA	Multichannel  COMMENT etc. • • •  Multichannel	Γ <sub>14</sub> /Γ
value  • • • We do not use the following 0.003 <sup>1</sup> From the preferred solution A in $\Gamma(N\overline{K}^*(892), S=3/2, G\text{-wave})$ value  • • • We do not use the following not seen <sup>1</sup> From the preferred solution A in $\Gamma(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\overline{K} \to \Sigma(1)$ value  0.293±0.013 OUR FIT Error in	DOCUMENT ID  data for average:  1 KAMANO  1 KAMANO  15.  1 KAMANO  15.  1 KAMANO  1 KA	s, fits, 15 s, fits, 15 or of :	TECN DPWA  TECN  Imits, 6  DPWA	COMMENT  Multichannel  COMMENT  And	Γ <sub>14</sub> /Γ
value  • • • We do not use the following 0.003 <sup>1</sup> From the preferred solution A in $\Gamma(N\overline{K}^*(892), S=3/2, G\text{-wave})$ value  • • • We do not use the following not seen <sup>1</sup> From the preferred solution A in $\Gamma(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\overline{K} \to \Sigma(11)$	DOCUMENT ID  data for average:  1 KAMANO  1 KAMANO  15.  1 KAMANO  15.  1 KAMANO  1 KA	s, fits, 15 s, fits, 15 or of :	TECN DPWA  TECN  Imits, 6  DPWA	COMMENT  Multichannel  COMMENT  And	Γ <sub>14</sub> /Γ
VALUE  • • • We do not use the following 0.003 <sup>1</sup> From the preferred solution A in $\Gamma(N\overline{K}^*(892), S=3/2, G\text{-wave})$ VALUE  • • • We do not use the following not seen <sup>1</sup> From the preferred solution A in $\Gamma(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\overline{K} \to \Sigma(1)$ VALUE  0.293±0.013 OUR FIT Error in 0.295±0.012 OUR AVERAGE Scale factor of 1.4. See the ideograf $-0.31 \pm 0.01$	DOCUMENT ID  data for average:  KAMANO  KAMANO  KAMANO  LOCUMENT ID  data for average:  KAMANO   s, fits, 15 s, fits, 15 or of :	TECN Is were ig	COMMENT  COMMENT  COMMENT  COMMENT  (F1  COMMENT  COMMENT  Multichannel	$\Gamma_{14}/\Gamma$ $\Gamma_{2}$ $\Gamma_{2}$	
VALUE  • • • We do not use the following 0.003 <sup>1</sup> From the preferred solution A in $\Gamma(N\overline{K}^*(892), S=3/2, G\text{-wave})$ VALUE  • • • We do not use the following not seen <sup>1</sup> From the preferred solution A in $\Gamma(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\overline{K} \to \Sigma(1)$ VALUE  0.293±0.013 OUR FIT Error in 0.295±0.012 OUR AVERAGE Scale factor of 1.4. See the ideogram $-0.31 \pm 0.01$ $-0.28 \pm 0.03$	DOCUMENT ID  data for average:  1 KAMANO  1 KAMANO  15.  1 KAMANO  15.  1 KAMANO  16 KAMANO  16 KAMANO  16 KAMANO  175)  16 KAMANO  175)  175)  175)  176 KAMANO  1775)  1	s, fits, 15 s, fits, 15 or of : ements 13A 77	TECN limits, e DPWA  TECN limits, e DPWA  TECN 1.8. s were ig DPWA  DPWA	Multichannel  COMMENT  etc. • • •  Multichannel  ( $\Gamma_1$ COMMENT  nored. Error inc  Multichannel $\overline{K}$ $N$ multichannel	$\Gamma_{14}/\Gamma$ $\Gamma_{2})^{\frac{1}{2}}/\Gamma$ cludes
VALUE  • • • We do not use the following 0.003 <sup>1</sup> From the preferred solution A in $\Gamma(N\overline{K}^*(892), S=3/2, G\text{-wave})$ VALUE  • • • We do not use the following not seen <sup>1</sup> From the preferred solution A in $\Gamma(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\overline{K} \to \Sigma(1:VALUE)$ 0.293±0.013 OUR FIT Error in 0.295±0.012 OUR AVERAGE Scale factor of 1.4. See the ideogram -0.31 ±0.01  -0.28 ±0.03  -0.25 ±0.02	DOCUMENT ID  data for averages  1 KAMANO  1 KAMANO  15.  (Γtotal  DOCUMENT ID  data for averages  1 KAMANO  1 KAMAN	s, fits, 15 s, fits, 15 or of 1 ements 13A 77 75	TECN limits, 6 DPWA  TECN  I.8. s were ig  DPWA  DPWA  IPWA	Multichannel  COMMENT  etc. • • •  Multichannel  ( $\Gamma_1$ COMMENT  nored. Error inc  Multichannel $\overline{K} N$ multichan $\overline{K} N \to \Lambda \pi$	$\Gamma_{14}/\Gamma$ $\Gamma_{2})^{\frac{1}{2}}/\Gamma$ cludes
VALUE  • • • We do not use the following 0.003 <sup>1</sup> From the preferred solution A in $\Gamma(N\overline{K}^*(892), S=3/2, G\text{-wave})$ VALUE  • • • We do not use the following not seen <sup>1</sup> From the preferred solution A in $\Gamma(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\overline{K} \to \Sigma(1)$ VALUE  0.293±0.013 OUR FIT Error in 0.295±0.012 OUR AVERAGE Scale factor of 1.4. See the ideogram $-0.31 \pm 0.01$ $-0.28 \pm 0.03$	DOCUMENT ID  data for average:  1 KAMANO  1 KAMANO  15.  1 KAMANO  15.  1 KAMANO  16 KAMANO  16 KAMANO  16 KAMANO  175)  16 KAMANO  175)  175)  175)  176 KAMANO  1775)  1	s, fits, 15 s, fits, 15 or of 1 ements 13A 77 75	TECN limits, 6 DPWA  TECN  I.8. s were ig  DPWA  DPWA  IPWA	Multichannel  COMMENT  etc. • • •  Multichannel  ( $\Gamma_1$ COMMENT  nored. Error inc  Multichannel $\overline{K}$ $N$ multichannel	$\Gamma_{14}/\Gamma$ $\Gamma_{2})^{\frac{1}{2}}/\Gamma$ cludes
VALUE  • • • We do not use the following 0.003 <sup>1</sup> From the preferred solution A in $\Gamma(N\overline{K}^*(892), S=3/2, G\text{-wave})$ VALUE  • • • We do not use the following not seen <sup>1</sup> From the preferred solution A in $\Gamma(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in	DOCUMENT ID  data for averages  1 KAMANO  1 KAMANO  15.  (Γtotal  DOCUMENT ID  data for averages  1 KAMANO  1 KAMAN	s, fits, 15 s, fits, 15 or of 1 ements 13A 77 75 75	TECN limits, 6 DPWA  TECN  I.8. s were ig  DPWA  DPWA  IPWA	Multichannel  COMMENT  etc. • • •  Multichannel  ( $\Gamma_1$ COMMENT  nored. Error inc  Multichannel $\overline{K} N$ multichan $\overline{K} N \to \Lambda \pi$	$\Gamma_{14}/\Gamma$ $\Gamma_{2})^{\frac{1}{2}}/\Gamma$ cludes
value  • • • We do not use the following 0.003 <sup>1</sup> From the preferred solution A in Γ(N $\overline{K}$ *(892), S=3/2, G-wave)  value  • • • We do not use the following not seen <sup>1</sup> From the preferred solution A in (Γ <sub>i</sub> Γ <sub>f</sub> )  value  0.293±0.013 OUR FIT Error in 0.295±0.012 OUR AVERAGE Scale factor of 1.4. See the ideografication of 1.4. See the ideografication of 1.28 ±0.03  -0.28 ±0.03  -0.25 ±0.02  -0.28 +0.04  -0.05	DOCUMENT ID  data for average:  1 KAMANO  1 KAMANO  15.  1 KAMANO  15.  1 KAMANO  16 KAMANO  16 KAMANO  175) A  1 KAMANO  16 KAMANO  175) A  1 KAMANO  16 KAMANO  175) A  1 KAMANO  175) A  1 KAMANO   s, fits, 15 s, fits, 15 or of 1 ements 13A 77 75 75 74B	TECN limits, 6 DPWA  TECN limits, 6 DPWA  TECN 1.8. s were ig DPWA DPWA IPWA DPWA	Multichannel  COMMENT  etc. • • •  Multichannel  ( $\Gamma_1$ COMMENT  nored. Error inc.  Multichannel $\overline{K}$ $N$ multichan $\overline{K}$ $N \to \Lambda \pi$ $K^- p \to \Lambda \pi^0$ Fixed- $t$ dispers	$\Gamma_{14}/\Gamma$ $\Gamma_{2})^{\frac{1}{2}}/\Gamma$ cludes	

$$-0.29$$
 or  $-0.28$   $^{1}$  MARTIN 77 DPWA  $\overline{K}$  N multichannel DEBELLEFON 76 IPWA  $K^{-}p \rightarrow \Lambda\pi^{0}$ 

# WEIGHTED AVERAGE 0.295±0.012 (Error scaled by 1.4)



 $(\Gamma_i \Gamma_f)^{\frac{1}{2}} / \Gamma_{\text{total}} \text{ in } N\overline{K} \to \Sigma (1775) \to \Sigma \pi$ VALUE

DOCUMENT ID

TECH

 $(\Gamma_1\Gamma_3)^{\frac{1}{2}}/\Gamma$ 

Created: 5/30/2017 17:20

**0.090±0.009 OUR FIT** Error includes scale factor of 1.4.

 $0.090 \pm 0.011$  OUR AVERAGE Signs on measurements were ignored. Error includes scale factor of 1.6. See the ideogram below.

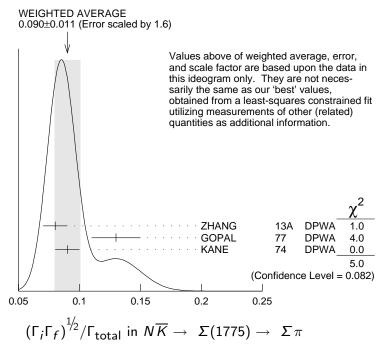
+0.08	$\pm 0.01$	ZHANG	13A	DPWA Multichannel
+0.13	$\pm 0.02$	GOPAL	77	DPWA $\overline{K}N$ multichannel
0.09	$\pm 0.01$	KANE	74	DPWA $K^-p \rightarrow \Sigma \pi$

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

+0.08 or +0.08  $^{1}$  MARTIN  $^{77}$  DPWA  $\overline{K}$  N multichannel

<sup>&</sup>lt;sup>1</sup> The two MARTIN 77 values are from a T-matrix pole and from a Breit-Wigner fit.

 $<sup>^{</sup>m 1}$  The two MARTIN 77 values are from a T-matrix pole and from a Breit-Wigner fit.



VALUE

DOCUMENT ID

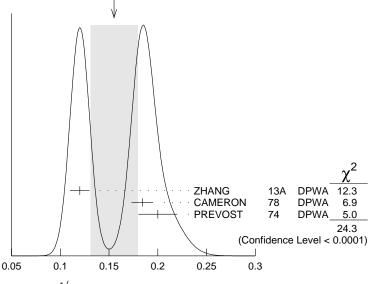
TECN
COMMENT

O.155±0.024 OUR AVERAGE
Signs on measurements were ignored. Error includes scale factor of 3.5. See the ideogram below.

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

0.32  $\pm 0.06$  SIMS 68 DBC  $K^-N \to \Lambda\pi\pi$ 0.24  $\pm 0.03$  ARMENTEROS67C HBC  $K^-p \to \Lambda\pi\pi$ 

WEIGHTED AVERAGE 0.155±0.024 (Error scaled by 3.5)



 $(\Gamma_i \Gamma_f)^{1\!\!/2}/\Gamma_{\mathsf{total}} \ \mathsf{in} \ N\overline{K} o \ \varSigma(1775) o \ \varSigma(1385)\pi$  ,  $\mathit{D}\!\!$ -wave

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<sup>1</sup> The CAMERON 78 upper limit on *G*-wave decay is 0.03.

$$(\Gamma_i \Gamma_f)^{\frac{1}{2}} / \Gamma_{\text{total}} \text{ in } N \overline{K} \rightarrow \Sigma (1775) \rightarrow \Lambda (1520) \pi, P\text{-wave}$$
 $VALUE$ 
 $VAL$ 

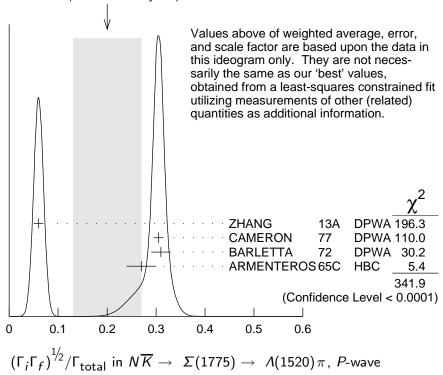
**0.10**  $\pm$ **0.06 OUR FIT** Error includes scale factor of 11.5.

 $0.20 \pm 0.07$  OUR AVERAGE Signs on measurements were ignored. Error includes scale factor of 10.7. See the ideogram below.

$-0.06 \pm 0.01$	ZHANG 13A	DPWA	Multichannel
$-0.305 \pm 0.010$	<sup>1</sup> CAMERON 77	DPWA	$K^- p \rightarrow \Lambda(1520) \pi^0$
$0.31 \pm 0.02$	BARLETTA 72	DPWA	$K^- p \rightarrow \Lambda(1520) \pi^0$
$0.27 \pm 0.03$	ARMENTEROS650	HBC	$K^{-}p \to \Lambda(1520)\pi^{0}$

<sup>&</sup>lt;sup>1</sup> This rate combines P-wave- and F-wave decays. The CAMERON 77 results for the separate P-wave- and F-wave decays are  $-0.303 \pm 0.010$  and  $-0.037 \pm 0.014$ . The published signs have been changed here to be in accord with the baryon-first convention.

WEIGHTED AVERAGE 0.20±0.07 (Error scaled by 11.)



$$(\Gamma_i \Gamma_f)^{1/2}/\Gamma_{\text{total}} \text{ in } N\overline{K} \rightarrow \Sigma(1775) \rightarrow \Delta(1232)\overline{K}, D\text{-wave} \qquad (\Gamma_1 \Gamma_{10})^{1/2}/\Gamma_{\text{total}} \qquad DOCUMENT ID \qquad TECN COMMENT TO TECN COMMENT TO TECN TO THE PROOF TO THE$$

$$(\Gamma_i\Gamma_f)^{\frac{1}{2}}/\Gamma_{\text{total}} \text{ in } N\overline{K} \rightarrow \Sigma(1775) \rightarrow N\overline{K}^*(892), S=1/2 \qquad (\Gamma_1\Gamma_{11})^{\frac{1}{2}}/\Gamma_{\frac{VALUE}{2}} \qquad DOCUMENT ID \qquad TECN COMMENT TO TECN TO THE PROPERTY OF THE PROPERTY O$$

 $(\Gamma_i \Gamma_f)^{1/2}/\Gamma_{\text{total}} \text{ in } N\overline{K} \rightarrow \Sigma(1775) \rightarrow N\overline{K}^*(892), S=3/2, D\text{-wave}$   $(\Gamma_1 \Gamma_{13})^{1/2}/\Gamma$ 

VALUEDOCUMENT IDTECNCOMMENT+0.04±0.01ZHANG13ADPWAMultichannel

## $\Sigma$ (1775) REFERENCES

KAMANO ZHANG PDG GOPAL ALSTON Also CAMERON CAMERON GOPAL MARTIN Also Also DEBELLEFON BAILLON VANHORN Also DEVENISH KANE PREVOST BARLETTA Also	15 13A 82 80 78 77 77 77 76 75 75 74B 74 74 72	PR C92 025205 PR C88 035205 PL 111B 1 Toronto Conf. 159 PR D18 182 PRL 38 1007 NP B143 189 NP B131 399 NP B193 362 NP B127 349 NP B126 266 NP B126 285 NP B109 129 NP B94 39 NP B87 145 NP B87 157 NP B81 330 LBL-2452 NP B69 246 NP B40 45 PRL 17 841	H. Kamano et al. H. Zhang et al. M. Roos et al. G.P. Gopal M. Alston-Garnjost et al. M. Alston-Garnjost et al. W. Cameron et al. W. Cameron et al. B.R. Martin, M.K. Pidcock, R.G. B.R. Martin, M.K. Pidcock B.R. Martin, M.K. Pidcock A. de Bellefon, A. Berthon P.H. Baillon, P.J. Litchfield A.J. van Horn A.J. van Horn R.C.E. Devenish, C.D. Froggatt, D.F. Kane J. Prevost et al. W.A. Barletta S. Fenster et al.	(LOUC) (LOUC) IJP (CDEF) IJP (CERN, RHEL) IJP (LBL) IJP (LBL) IJP B.R. Martin (DESY+) (LBL) IJP (SACL, CERN, HEID) (EFI) IJP (CHIC, ANL, CERN) IJP
KANE PREVOST	74 74	LBL-2452 NP B69 246	D.F. Kane J. Prevost <i>et al.</i>	B.R. Martin (DESY+) (LBL) IJP (SACL, CERN, HEID)
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