

**$K^*(892)$** 

$$I(J^P) = \frac{1}{2}(1^-)$$

 **$K^*(892)$  T-Matrix Pole  $\sqrt{s}$** 

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>(890 ± 14) – i (26 ± 6) OUR ESTIMATE</b>			
• • • We do not use the following data for averages, fits, limits, etc. • • •			
(890 ± 2) – i (25.6 ± 1.2)	<sup>1</sup> PELAEZ 20	RVUE	$\pi K \rightarrow \pi K$
(892 ± 1) – i (29 ± 1)	<sup>2</sup> PELAEZ 17	RVUE	$\pi K \rightarrow \pi K$
(889 ± 13) – i (24 ± 4)	<sup>3</sup> PELAEZ 04A	RVUE	$\pi K \rightarrow \pi K$
<sup>1</sup> Extracted employing $\pi K$ partial wave analysis from ESTABROOKS 78 and ASTON 88, Roy-Steiner equations and once subtracted forward dispersion relations.			
<sup>2</sup> Reanalysis of ESTABROOKS 78 and ASTON 88 satisfying Forward Dispersion Relations and using sequences of Pade approximants.			
<sup>3</sup> Reanalysis of data from ESTABROOKS 78 and ASTON 88 in the unitarized ChPT model.			

 **$K^*(892)$  MASS****CHARGED ONLY, HADROPRODUCED**

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
<b>891.67 ± 0.26 OUR AVERAGE</b>					
892.2 ± 0.5 ± 1.7		ALBRECHT 20	CBAR		0.9 $\bar{p}p \rightarrow K^+ K^- \pi^0$
892.6 ± 0.5	5840	BAUBILLIER 84B	HBC	–	8.25 $K^- p \rightarrow \bar{K}^0 \pi^- p$
888 ± 3		NAPIER 84	SPEC	+	200 $\pi^- p \rightarrow 2K_S^0 X$
891 ± 1		NAPIER 84	SPEC	–	200 $\pi^- p \rightarrow 2K_S^0 X$
891.7 ± 2.1	3700	BARTH 83	HBC	+	70 $K^+ p \rightarrow K^0 \pi^+ X$
891 ± 1	4100	TOAFF 81	HBC	–	6.5 $K^- p \rightarrow \bar{K}^0 \pi^- p$
892.8 ± 1.6		AJINENKO 80	HBC	+	32 $K^+ p \rightarrow K^0 \pi^+ X$
890.7 ± 0.9	1800	AGUILAR-... 78B	HBC	±	0.76 $\bar{p}p \rightarrow K^\mp K_S^0 \pi^\pm$
886.6 ± 2.4	1225	BALAND 78	HBC	±	12 $\bar{p}p \rightarrow (K\pi)^\pm X$
891.7 ± 0.6	6706	COOPER 78	HBC	±	0.76 $\bar{p}p \rightarrow (K\pi)^\pm X$
891.9 ± 0.7	9000	<sup>1</sup> PALER 75	HBC	–	14.3 $K^- p \rightarrow (K\pi)^- X$
892.2 ± 1.5	4404	AGUILAR-... 71B	HBC	–	3.9, 4.6 $K^- p \rightarrow (K\pi)^- p$
891 ± 2	1000	CRENNELL 69D	DBC	–	3.9 $K^- N \rightarrow K^0 \pi^- X$
890 ± 3.0	720	BARLOW 67	HBC	±	1.2 $\bar{p}p \rightarrow (K^0 \pi)^\pm K^\mp$
889 ± 3.0	600	BARLOW 67	HBC	±	1.2 $\bar{p}p \rightarrow (K^0 \pi)^\pm K\pi$
891 ± 2.3	620	<sup>2</sup> DEBAERE 67B	HBC	+	3.5 $K^+ p \rightarrow K^0 \pi^+ p$
891.0 ± 1.2	1700	<sup>3</sup> WOJCICKI 64	HBC	–	1.7 $K^- p \rightarrow \bar{K}^0 \pi^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
893.6 ± 0.1 $^{+0.2}_{-0.3}$	183k	ABLIKIM 19AQ	BES	±	$J/\psi \rightarrow K^+ K^- \pi^0$
895.6 ± 0.8	4k	<sup>4</sup> LEES 17C	BABR		$J/\psi \rightarrow K_S^0 K^\pm \pi^\mp$
893.2 ± 0.1 ± 1.0	190k	<sup>5</sup> AAIJ 16N	LHCB		$D^0 \rightarrow K_S^0 K^\pm \pi^\mp$
893.5 ± 1.1	27k	<sup>6</sup> ABELE 99D	CBAR	±	0.0 $\bar{p}p \rightarrow K^+ K^- \pi^0$
890.4 ± 0.2 ± 0.5	80k	<sup>7</sup> BIRD 89	LASS	–	11 $K^- p \rightarrow \bar{K}^0 \pi^- p$

890.0 ±2.3	800	<sup>2,3</sup> CLELAND	82	SPEC +	30	$K^+ p \rightarrow K_S^0 \pi^+ p$
896.0 ±1.1	3200	<sup>2,3</sup> CLELAND	82	SPEC +	50	$K^+ p \rightarrow K_S^0 \pi^+ p$
893 ±1	3600	<sup>2,3</sup> CLELAND	82	SPEC -	50	$K^+ p \rightarrow K_S^0 \pi^- p$
896.0 ±1.9	380	DELFOSSÉ	81	SPEC +	50	$K^\pm p \rightarrow K^\pm \pi^0 p$
886.0 ±2.3	187	DELFOSSÉ	81	SPEC -	50	$K^\pm p \rightarrow K^\pm \pi^0 p$
894.2 ±2.0	765	<sup>2</sup> CLARK	73	HBC -	3.13	$K^- p \rightarrow \bar{K}^0 \pi^- p$
894.3 ±1.5	1150	<sup>2,3</sup> CLARK	73	HBC -	3.3	$K^- p \rightarrow \bar{K}^0 \pi^- p$
892.0 ±2.6	341	<sup>2</sup> SCHWEING... <sup>68</sup>	68	HBC -	5.5	$K^- p \rightarrow \bar{K}^0 \pi^- p$

<sup>1</sup> Inclusive reaction. Complicated background and phase-space effects.

<sup>2</sup> Mass errors enlarged by us to  $\Gamma/\sqrt{N}$ . See note.

<sup>3</sup> Number of events in peak reevaluated by us.

<sup>4</sup> From a Dalitz plot analysis in an isobar model with charged and neutral  $K^*$  (892) masses and widths floating.

<sup>5</sup> Average of fit results with different parametrizations for the  $K\pi$   $S$ -wave.

<sup>6</sup>  $K$ -matrix pole.

<sup>7</sup> From a partial wave amplitude analysis.

### CHARGED ONLY, PRODUCED IN $\tau$ LEPTON DECAYS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>895.47 ± 0.20 ± 0.74</b>	53k	<sup>1</sup> EPIFANOV 07	BELL	$\tau^- \rightarrow K_S^0 \pi^- \nu_\tau$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
892.0 ± 0.5		<sup>2</sup> BOITO 10	RVUE	$\tau^- \rightarrow K_S^0 \pi^- \nu_\tau$
892.0 ± 0.9		<sup>3,4</sup> BOITO 09	RVUE	$\tau^- \rightarrow K_S^0 \pi^- \nu_\tau$
895.3 ± 0.2		<sup>4,5</sup> JAMIN 08	RVUE	$\tau^- \rightarrow K_S^0 \pi^- \nu_\tau$
896.4 ± 0.9	12k	<sup>6</sup> BONVICINI 02	CLEO	$\tau^- \rightarrow K^- \pi^0 \nu_\tau$
895 ± 2		<sup>7</sup> BARATE 99R	ALEP	$\tau^- \rightarrow K^- \pi^0 \nu_\tau$

<sup>1</sup> From a fit in the  $K_0^*(700) + K^*(892) + K^*(1410)$  model.

<sup>2</sup> From the pole position of the  $K\pi$  vector form factor using EPIFANOV 07 and constraints from  $K_{J3}$  decays in ANTONELLI 10.

<sup>3</sup> From the pole position of the  $K\pi$  vector form factor in the complex  $s$ -plane and using EPIFANOV 07 data.

<sup>4</sup> Systematic uncertainties not estimated.

<sup>5</sup> Reanalysis of EPIFANOV 07 using resonance chiral theory.

<sup>6</sup> Calculated by us from the shift by  $4.7 \pm 0.9$  MeV (statistical uncertainty only) reported in BONVICINI 02 with respect to the world average value from PDG 00.

<sup>7</sup> With mass and width of the  $K^*(1410)$  fixed at 1412 MeV and 227 MeV, respectively.

### NEUTRAL ONLY

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>895.55 ± 0.20 OUR AVERAGE</b>		Error includes scale factor of 1.7. See the ideogram below.		
894.68 ± 0.25 ± 0.05		<sup>1</sup> ABLIKIM 16F	BES3	$D^+ \rightarrow K^- \pi^+ e^+ \nu_e$
895.4 ± 0.2 ± 0.2	243k	<sup>2</sup> DEL-AMO-SA..11I	BABR	$D^+ \rightarrow K^- \pi^+ e^+ \nu_e$
895.7 ± 0.2 ± 0.3	141k	<sup>3</sup> BONVICINI 08A	CLEO	$D^+ \rightarrow K^- \pi^+ \pi^+$
895.41 ± 0.32 <sup>+0.35</sup> / <sub>-0.43</sub>	18k	<sup>4</sup> LINK 05I	FOCS	$D^+ \rightarrow K^- \pi^+ \mu^+ \nu_\mu$
896 ± 2		BARBERIS 98E	OMEG	450 $pp \rightarrow p_f p_s K^* \bar{K}^*$
895.9 ± 0.5 ± 0.2		ASTON 88	LASS	11 $K^- p \rightarrow K^- \pi^+ n$
894.52 ± 0.63	25k	<sup>5</sup> ATKINSON 86	OMEG	20-70 $\gamma p$
894.63 ± 0.76	20k	<sup>5</sup> ATKINSON 86	OMEG	20-70 $\gamma p$
897 ± 1	28k	EVANGELIS... 80	OMEG	10 $\pi^- p \rightarrow K^+ \pi^- (\Lambda, \Sigma)$

898.4 ±1.4	1180	AGUILAR-...	78B	HBC	0.76	$\bar{p}p \rightarrow K^{\mp} K_S^0 \pi^{\pm}$
894.9 ±1.6		WICKLUND	78	ASPK	3,4,6	$K^{\pm} N \rightarrow (K\pi)^0 N$
897.6 ±0.9		BOWLER	77	DBC	5.4	$K^+ d \rightarrow K^+ \pi^- p p$
895.5 ±1.0	3600	MCCUBBIN	75	HBC	3.6	$K^- p \rightarrow K^- \pi^+ n$
897.1 ±0.7	22k	<sup>5</sup> PALER	75	HBC	14.3	$K^- p \rightarrow (K\pi)^0 X$
896.0 ±0.6	10k	FOX	74	RVUE	2	$K^- p \rightarrow K^- \pi^+ n$
896.0 ±0.6		FOX	74	RVUE	2	$K^+ n \rightarrow K^+ \pi^- p$
896 ±2		<sup>6</sup> MATISON	74	HBC	12	$K^+ p \rightarrow K^+ \pi^- \Delta$
896 ±1	3186	LEWIS	73	HBC	2.1-2.7	$K^+ p \rightarrow K \pi \pi p$
894.0 ±1.3		<sup>6</sup> LINGLIN	73	HBC	2-13	$K^+ p \rightarrow$ $K^+ \pi^- \pi^+ p$
898.4 ±1.3	1700	<sup>7</sup> BUCHNER	72	DBC	4.6	$K^+ n \rightarrow K^+ \pi^- p$
897.9 ±1.1	2934	<sup>7</sup> AGUILAR-...	71B	HBC	3.9,4.6	$K^- p \rightarrow K^- \pi^+ n$
898.0 ±0.7	5362	<sup>7</sup> AGUILAR-...	71B	HBC	3.9,4.6	$K^- p \rightarrow$ $K^- \pi^+ \pi^- p$
895 ±1	4300	<sup>8</sup> HABER	70	DBC	3	$K^- N \rightarrow K^- \pi^+ X$
893.7 ±2.0	10k	DAVIS	69	HBC	12	$K^+ p \rightarrow K^+ \pi^- \pi^+ p$
894.7 ±1.4	1040	<sup>7</sup> DAUBER	67B	HBC	2.0	$K^- p \rightarrow K^- \pi^+ \pi^- p$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●						
895.50 ±0.92 ±2.6		<sup>9</sup> ADUSZKIEW...	20A	NA61	158	$pp$
898.1 ±1.0	4k	<sup>10</sup> LEES	17C	BABR	$J/\psi \rightarrow$	$K_S^0 K^{\pm} \pi^{\mp}$
895.53 ±0.17		LEES	13F	BABR	$D^+ \rightarrow$	$K^+ K^- \pi^+$
894.9 ±0.5 ±0.7	14.4k	<sup>11</sup> MITCHELL	09A	CLEO	$D_s^+ \rightarrow$	$K^+ K^- \pi^+$
896.2 ±0.3	20k	<sup>12</sup> AUBERT	07AK	BABR	10.6	$e^+ e^- \rightarrow$ $K^{*0} K^{\pm} \pi^{\mp} \gamma$
900.7 ±1.1	5900	BARTH	83	HBC	70	$K^+ p \rightarrow K^+ \pi^- X$

<sup>1</sup> Taking also into account the  $K_0^{*}(1430)^0$  and  $K_2^{*}(1430)^0$ .

<sup>2</sup> Taking into account the  $K^{*}(892)^0$ , *S*-wave and *P*-wave ( $K^{*}(1410)^0$ ).

<sup>3</sup> From the isobar model with a complex pole for the  $\kappa$ .

<sup>4</sup> Fit to  $K\pi$  mass spectrum includes a non-resonant scalar component.

<sup>5</sup> Inclusive reaction. Complicated background and phase-space effects.

<sup>6</sup> From pole extrapolation.

<sup>7</sup> Mass errors enlarged by us to  $\Gamma/\sqrt{N}$ . See note.

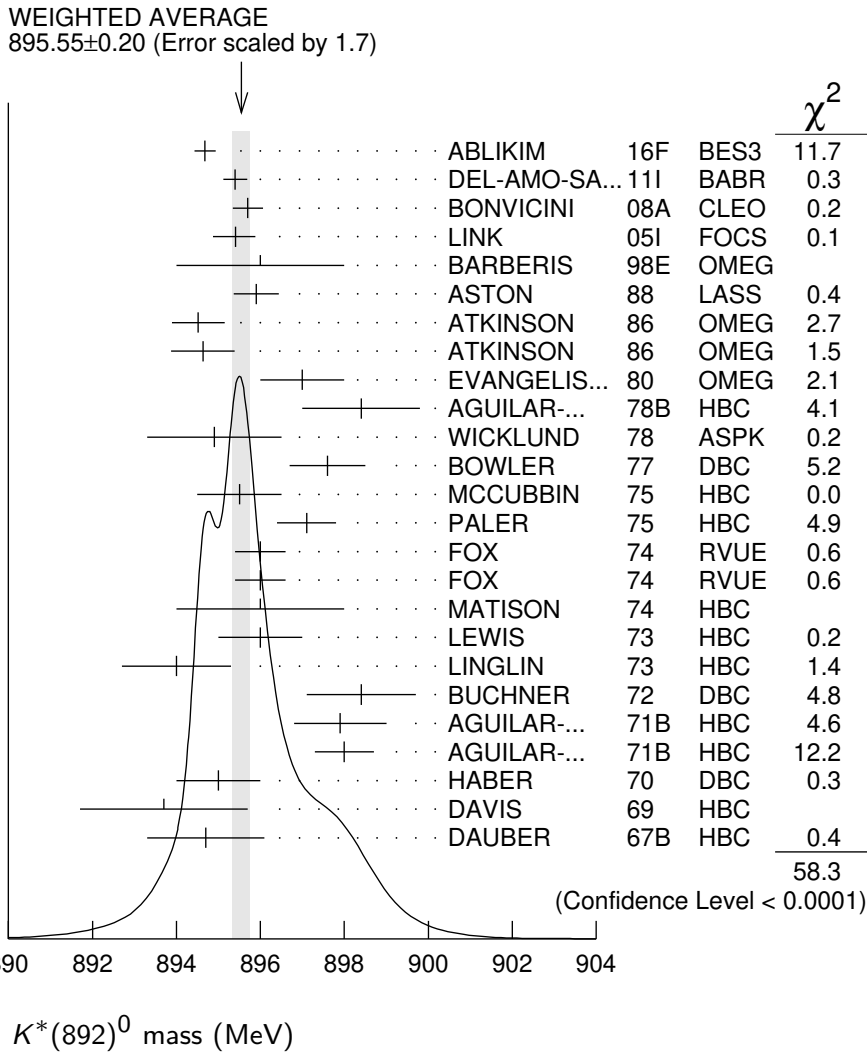
<sup>8</sup> Number of events in peak reevaluated by us.

<sup>9</sup> For transverse momenta between 0.6 and 0.8 GeV/c and rapidity  $0 < y < 0.5$ .

<sup>10</sup> From a Dalitz plot analysis in an isobar model with charged and neutral  $K^{*}(892)$  masses and widths floating.

<sup>11</sup> This value comes from a fit with  $\chi^2$  of 178/117.

<sup>12</sup> Systematic uncertainties not estimated.



## $K^*(892)$ MASSES AND MASS DIFFERENCES

Unrealistically small errors have been reported by some experiments. We use simple “realistic” tests for the minimum errors on the determination of a mass and width from a sample of  $N$  events:

$$\delta_{\min}(m) = \frac{\Gamma}{\sqrt{N}}, \quad \delta_{\min}(\Gamma) = 4 \frac{\Gamma}{\sqrt{N}}. \quad (1)$$

We consistently increase unrealistic errors before averaging. For a detailed discussion, see the 1971 edition of this Note.

$m_{K^*(892)^0} - m_{K^*(892)^\pm}$ 

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
<b>6.7±1.2 OUR AVERAGE</b>					
7.7±1.7	2980	AGUILAR-...	78B	HBC	±0 0.76 $\bar{p}p \rightarrow K^\mp K_S^0 \pi^\pm$
5.7±1.7	7338	AGUILAR-...	71B	HBC	-0 3.9,4.6 $K^- p$
6.3±4.1	283	<sup>1</sup> BARASH	67B	HBC	0.0 $\bar{p}p$

<sup>1</sup> Number of events in peak reevaluated by us. **$K^*(892)$  RANGE PARAMETER**

All from partial wave amplitude analyses.

VALUE (GeV <sup>-1</sup> )	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
2.1 ±0.5 ±0.5	243k	<sup>1</sup> DEL-AMO-SA.11i	BABR	0	$D^+ \rightarrow K^- \pi^+ e^+ \nu_e$
3.96±0.54 <sup>+1.31</sup> <sub>-0.90</sub>	18k	<sup>2</sup> LINK	05i	FOCS	0 $D^+ \rightarrow K^- \pi^+ \mu^+ \nu_\mu$
3.4 ±0.7		ASTON	88	LASS	0 11 $K^- p \rightarrow K^- \pi^+ n$
• • •					We do not use the following data for averages, fits, limits, etc. • • •
12.1 ±3.2 ±3.0		BIRD	89	LASS	- 11 $K^- p \rightarrow \bar{K}^0 \pi^- p$

<sup>1</sup> Taking into account the  $K^*(892)^0$ ,  $S$ -wave and  $P$ -wave ( $K^*(1410)^0$ ).<sup>2</sup> Fit to  $K\pi$  mass spectrum includes a non-resonant scalar component. **$K^*(892)$  WIDTH****CHARGED ONLY, HADROPRODUCED**

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
<b>51.4±0.8 OUR FIT</b>					
<b>51.4±0.8 OUR AVERAGE</b>					
54.4±0.9±1.7		ALBRECHT	20	CBAR	0.9 $\bar{p}p \rightarrow K^+ K^- \pi^0$
49 ±2	5840	BAUBILLIER	84B	HBC	- 8.25 $K^- p \rightarrow \bar{K}^0 \pi^- p$
56 ±4		NAPIER	84	SPEC	- 200 $\pi^- p \rightarrow 2K_S^0 X$
51 ±2	4100	TOAFF	81	HBC	- 6.5 $K^- p \rightarrow \bar{K}^0 \pi^- p$
50.5±5.6		AJINENKO	80	HBC	+ 32 $K^+ p \rightarrow K^0 \pi^+ X$
45.8±3.6	1800	AGUILAR-...	78B	HBC	± 0.76 $\bar{p}p \rightarrow K^\mp K_S^0 \pi^\pm$
52.0±2.5	6706	<sup>1</sup> COOPER	78	HBC	± 0.76 $\bar{p}p \rightarrow (K\pi)^\pm X$
52.1±2.2	9000	<sup>2</sup> PALER	75	HBC	- 14.3 $K^- p \rightarrow (K\pi)^- X$
46.3±6.7	765	<sup>1</sup> CLARK	73	HBC	- 3.13 $K^- p \rightarrow \bar{K}^0 \pi^- p$
48.2±5.7	1150	<sup>1,3</sup> CLARK	73	HBC	- 3.3 $K^- p \rightarrow \bar{K}^0 \pi^- p$
54.3±3.3	4404	<sup>1</sup> AGUILAR-...	71B	HBC	- 3.9,4.6 $K^- p \rightarrow (K\pi)^- p$
46 ±5	1700	<sup>1,3</sup> WOJCICKI	64	HBC	- 1.7 $K^- p \rightarrow \bar{K}^0 \pi^- p$
• • •					We do not use the following data for averages, fits, limits, etc. • • •
46.7±0.2 <sup>+0.1</sup> <sub>-0.2</sub>	183k	ABLIKIM	19AQ	BES	± $J/\psi \rightarrow K^+ K^- \pi^0$
43.6±1.3	4k	<sup>4</sup> LEES	17C	BABR	$J/\psi \rightarrow K_S^0 K^\pm \pi^\mp$
47.2±0.3±2.3	190k	<sup>5</sup> AAIJ	16N	LHCB	$D^0 \rightarrow K_S^0 K^\pm \pi^\mp$
54.8±1.7	27k	<sup>6</sup> ABELE	99D	CBAR	± 0.0 $\bar{p}p \rightarrow K^+ K^- \pi^0$
45.2±1 ±2	80k	<sup>7</sup> BIRD	89	LASS	- 11 $K^- p \rightarrow \bar{K}^0 \pi^- p$

42.8±7.1	3700	BARTH	83	HBC	+	70	$K^+ p \rightarrow K^0 \pi^+ X$
64.0±9.2	800	1,3 CLELAND	82	SPEC	+	30	$K^+ p \rightarrow K_S^0 \pi^+ p$
62.0±4.4	3200	1,3 CLELAND	82	SPEC	+	50	$K^+ p \rightarrow K_S^0 \pi^+ p$
55 ±4	3600	1,3 CLELAND	82	SPEC	-	50	$K^+ p \rightarrow K_S^0 \pi^- p$
62.6±3.8	380	DELFOSSÉ	81	SPEC	+	50	$K^\pm p \rightarrow K^\pm \pi^0 p$
50.5±3.9	187	DELFOSSÉ	81	SPEC	-	50	$K^\pm p \rightarrow K^\pm \pi^0 p$

<sup>1</sup> Width errors enlarged by us to  $4 \times \Gamma/\sqrt{N}$ ; see note.

<sup>2</sup> Inclusive reaction. Complicated background and phase-space effects.

<sup>3</sup> Number of events in peak reevaluated by us.

<sup>4</sup> From a Dalitz plot analysis in an isobar model with charged and neutral  $K^*$ (892) masses and widths floating.

<sup>5</sup> Average of fit results with different parametrizations for the  $K\pi$   $S$ -wave.

<sup>6</sup>  $K$ -matrix pole.

<sup>7</sup> From a partial wave amplitude analysis.

## CHARGED ONLY, PRODUCED IN $\tau$ LEPTON DECAYS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>46.2±0.6±1.2</b>	53k	<sup>1</sup> EPIFANOV 07	BELL	$\tau^- \rightarrow K_S^0 \pi^- \nu_\tau$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
46.5±1.1		<sup>2</sup> BOITO 10	RVUE	$\tau^- \rightarrow K_S^0 \pi^- \nu_\tau$
46.2±0.4		<sup>3,4</sup> BOITO 09	RVUE	$\tau^- \rightarrow K_S^0 \pi^- \nu_\tau$
47.5±0.4		<sup>4,5</sup> JAMIN 08	RVUE	$\tau^- \rightarrow K_S^0 \pi^- \nu_\tau$
55 ±8		<sup>6</sup> BARATE 99R	ALEP	$\tau^- \rightarrow K^- \pi^0 \nu_\tau$

<sup>1</sup> From a fit in the  $K_0^*(700) + K^*(892) + K^*(1410)$  model.

<sup>2</sup> From the pole position of the  $K\pi$  vector form factor using EPIFANOV 07 and constraints from  $K_{J3}$  decays in ANTONELLI 10.

<sup>3</sup> From the pole position of the  $K\pi$  vector form factor in the complex  $s$ -plane and using EPIFANOV 07 data.

<sup>4</sup> Systematic uncertainties not estimated.

<sup>5</sup> Reanalysis of EPIFANOV 07 using resonance chiral theory.

<sup>6</sup> With mass and width of the  $K^*(1410)$  fixed at 1412 MeV and 227 MeV, respectively.

## NEUTRAL ONLY

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>47.3 ±0.5 OUR FIT</b>	Error includes scale factor of 1.9.			
<b>47.3 ±0.5 OUR AVERAGE</b>	Error includes scale factor of 2.0. See the ideogram below.			
46.53±0.56±0.31		<sup>1</sup> ABLIKIM 16F	BES3	$D^+ \rightarrow K^- \pi^+ e^+ \nu_e$
46.5 ±0.3 ±0.2	243k	<sup>2</sup> DEL-AMO-SA..11I	BABR	$D^+ \rightarrow K^- \pi^+ e^+ \nu_e$
45.3 ±0.5 ±0.6	141k	<sup>3</sup> BONVICINI 08A	CLEO	$D^+ \rightarrow K^- \pi^+ \pi^+$
47.79±0.86 <sup>+1.32</sup> <sub>-1.06</sub>	18k	<sup>4</sup> LINK 05I	FOCS	$D^+ \rightarrow K^- \pi^+ \mu^+ \nu_\mu$
54 ±3		BARBERIS 98E	OMEG 450	$pp \rightarrow p_f p_s K^* \bar{K}^*$
50.8 ±0.8 ±0.9		ASTON 88	LASS 11	$K^- p \rightarrow K^- \pi^+ n$
46.5 ±4.3	5900	BARTH 83	HBC 70	$K^+ p \rightarrow K^+ \pi^- X$
54 ±2	28k	EVANGELIS... 80	OMEG 10	$\pi^- p \rightarrow K^+ \pi^- (\Lambda, \Sigma)$
45.9 ±4.8	1180	AGUILAR-... 78B	HBC 0.76	$\bar{p} p \rightarrow K^\mp K_S^0 \pi^\pm$
51.2 ±1.7		WICKLUND 78	ASPK 3,4,6	$K^\pm N \rightarrow (K\pi)^0 N$
48.9 ±2.5		BOWLER 77	DBC 5.4	$K^+ d \rightarrow K^+ \pi^- pp$

48	$\begin{smallmatrix} +3 \\ -2 \end{smallmatrix}$	3600	MCCUBBIN	75	HBC	3.6	$K^- p \rightarrow K^- \pi^+ n$
50.6	$\pm 2.5$	22k	<sup>5</sup> PALER	75	HBC	14.3	$K^- p \rightarrow (K\pi)^0 X$
47	$\pm 2$	10k	FOX	74	RVUE	2	$K^- p \rightarrow K^- \pi^+ n$
51	$\pm 2$		FOX	74	RVUE	2	$K^+ n \rightarrow K^+ \pi^- p$
46.0	$\pm 3.3$	3186	<sup>6</sup> LEWIS	73	HBC	2.1-2.7	$K^+ p \rightarrow K\pi\pi p$
51.4	$\pm 5.0$	1700	<sup>6</sup> BUCHNER	72	DBC	4.6	$K^+ n \rightarrow K^+ \pi^- p$
55.8	$\begin{smallmatrix} +4.2 \\ -3.4 \end{smallmatrix}$	2934	<sup>6</sup> AGUILAR-...	71B	HBC	3.9,4.6	$K^- p \rightarrow K^- \pi^+ n$
48.5	$\pm 2.7$	5362	AGUILAR-...	71B	HBC	3.9,4.6	$K^- p \rightarrow$ $K^- \pi^+ \pi^- p$
54.0	$\pm 3.3$	4300	<sup>6,7</sup> HABER	70	DBC	3	$K^- N \rightarrow K^- \pi^+ X$
53.2	$\pm 2.1$	10k	<sup>6</sup> DAVIS	69	HBC	12	$K^+ p \rightarrow K^+ \pi^- \pi^+ p$
44	$\pm 5.5$	1040	<sup>6</sup> DAUBER	67B	HBC	2.0	$K^- p \rightarrow K^- \pi^+ \pi^- p$

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

48.8	$\pm 1.8 \pm 2.0$		<sup>8</sup> ADUSZKIEW...20A	NA61	158	$pp$	
52.6	$\pm 1.7$	4k	<sup>9</sup> LEES	17C	BABR	$J/\psi \rightarrow K_S^0 K^\pm \pi^\mp$	
44.90	$\pm 0.30$		LEES	13F	BABR	$D^+ \rightarrow K^+ K^- \pi^+$	
45.7	$\pm 1.1 \pm 0.5$	14.4k	<sup>10</sup> MITCHELL	09A	CLEO	$D_s^+ \rightarrow K^+ K^- \pi^+$	
50.6	$\pm 0.9$	20k	<sup>11</sup> AUBERT	07AK	BABR	$10.6 e^+ e^- \rightarrow$ $K^{*0} K^\pm \pi^\mp \gamma$	

<sup>1</sup> Taking also into account the  $K_0^*(1430)^0$  and  $K_2^*(1430)^0$ .

<sup>2</sup> Taking into account the  $K^*(892)^0$ ,  $S$ -wave and  $P$ -wave ( $K^*(1410)^0$ ).

<sup>3</sup> From the isobar model with a complex pole for the  $\kappa$ .

<sup>4</sup> Fit to  $K\pi$  mass spectrum includes a non-resonant scalar component.

<sup>5</sup> Inclusive reaction. Complicated background and phase-space effects.

<sup>6</sup> Width errors enlarged by us to  $4 \times \Gamma/\sqrt{N}$ ; see note.

<sup>7</sup> Number of events in peak reevaluated by us.

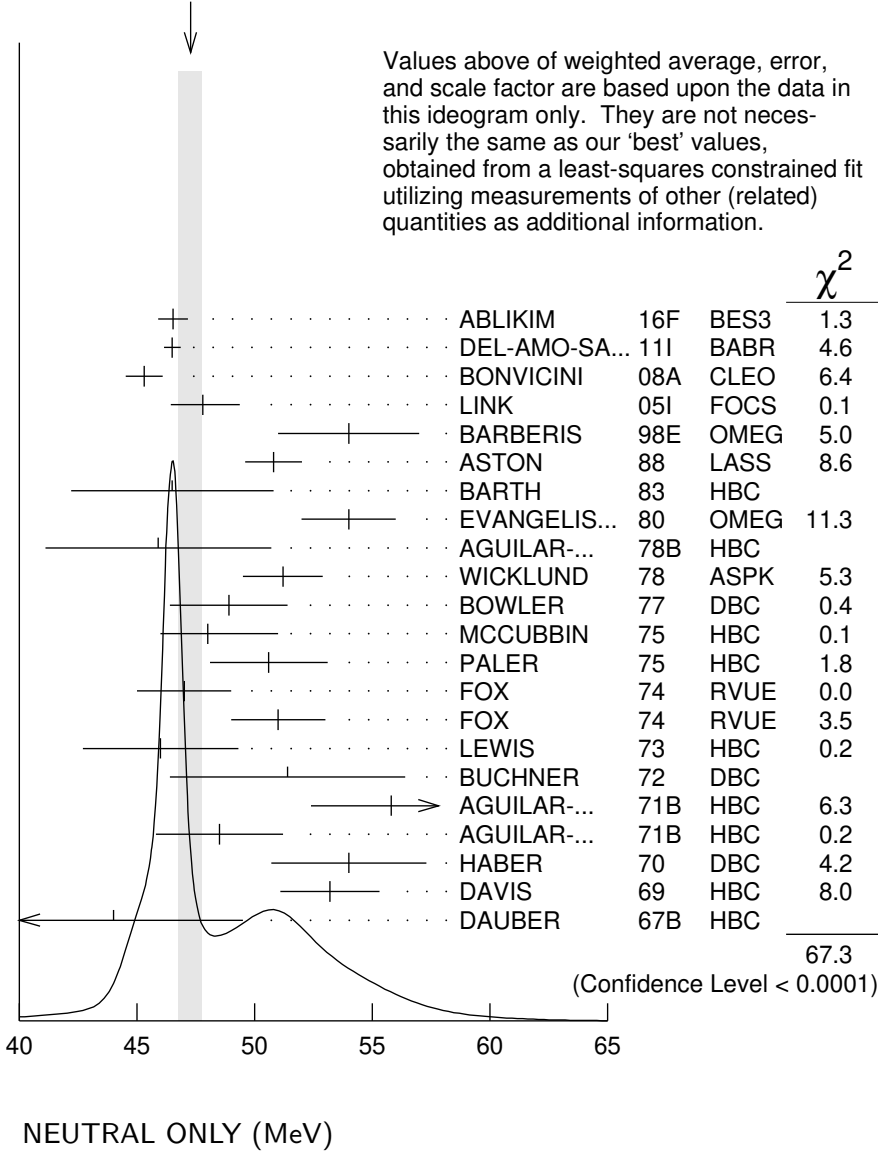
<sup>8</sup> For transverse momenta between 0.6 and 0.8 GeV/c and rapidity  $0 < y < 0.5$ .

<sup>9</sup> From a Dalitz plot analysis in an isobar model with charged and neutral  $K^*(892)$  masses and widths floating.

<sup>10</sup> This value comes from a fit with  $\chi^2$  of 178/117.

<sup>11</sup> Systematic uncertainties not estimated.

WEIGHTED AVERAGE  
 $47.3 \pm 0.5$  (Error scaled by 2.0)



### $K^*(892)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )	Confidence level
$\Gamma_1$ $K\pi$	$\sim 100$	%
$\Gamma_2$ $(K\pi)^\pm$	$(99.902 \pm 0.009)$	%
$\Gamma_3$ $(K\pi)^0$	$(99.754 \pm 0.021)$	%
$\Gamma_4$ $K^0\gamma$	$(2.46 \pm 0.21) \times 10^{-3}$	
$\Gamma_5$ $K^\pm\gamma$	$(9.8 \pm 0.9) \times 10^{-4}$	
$\Gamma_6$ $K\pi\pi$	$< 7$	$\times 10^{-4}$ 95%



**CONSTRAINED FIT INFORMATION**

An overall fit to the total width and a partial width uses 14 measurements and one constraint to determine 3 parameters. The overall fit has a  $\chi^2 = 10.7$  for 12 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients  $\langle \delta p_i \delta p_j \rangle / (\delta p_i \cdot \delta p_j)$ , in percent, from the fit to parameters  $p_i$ , including 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.

$$\begin{array}{c|cc} x_5 & -100 & \\ \Gamma & 17 & -17 \\ & x_2 & x_5 \end{array}$$

	Mode	Rate (MeV)
$\Gamma_2$	$(K\pi)^\pm$	$51.4 \pm 0.8$
$\Gamma_5$	$K^\pm \gamma$	$0.050 \pm 0.005$

**CONSTRAINED FIT INFORMATION**

An overall fit to the total width and a partial width uses 23 measurements and one constraint to determine 3 parameters. The overall fit has a  $\chi^2 = 68.4$  for 21 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients  $\langle \delta p_i \delta p_j \rangle / (\delta p_i \cdot \delta p_j)$ , in percent, from the fit to parameters  $p_i$ , including 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.

$$\begin{array}{c|cc} x_4 & -100 & \\ \Gamma & 12 & -12 \\ & x_3 & x_4 \end{array}$$

	Mode	Rate (MeV)	Scale factor
$\Gamma_3$	$(K\pi)^0$	$47.2 \pm 0.5$	1.9
$\Gamma_4$	$K^0 \gamma$	$0.117 \pm 0.010$	

 **$K^*(892)$  PARTIAL WIDTHS**

$\Gamma(K^0 \gamma)$						$\Gamma_4$
VALUE (keV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT	
<b>116 ± 10</b>	<b>OUR FIT</b>					
<b>116.5 ± 9.9</b>	584	CARLSMITH	86	SPEC	0	$K_L^0 A \rightarrow K_S^0 \pi^0 A$

$\Gamma(K^\pm \gamma)$  $\Gamma_5$ 

VALUE (keV)	DOCUMENT ID	TECN	CHG	COMMENT
<b>50 ± 5 OUR FIT</b>				
<b>50 ± 5 OUR AVERAGE</b>				
48 ± 11	BERG	83	SPEC -	156 $K^- A \rightarrow \bar{K} \pi A$
51 ± 5	CHANDLEE	83	SPEC +	200 $K^+ A \rightarrow K \pi A$

 $K^*(892)$  BRANCHING RATIOS $\Gamma(K^0 \gamma)/\Gamma_{\text{total}}$  $\Gamma_4/\Gamma$ 

VALUE (units $10^{-3}$ )	DOCUMENT ID	TECN	CHG	COMMENT
<b>2.46 ± 0.21 OUR FIT</b>				
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.5 ± 0.7	CARITHERS	75B	CNTR 0	8–16 $\bar{K}^0 A$

 $\Gamma(K^\pm \gamma)/\Gamma_{\text{total}}$  $\Gamma_5/\Gamma$ 

VALUE (units $10^{-3}$ )	CL%	DOCUMENT ID	TECN	CHG	COMMENT
<b>0.98 ± 0.09 OUR FIT</b>					
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<1.6	95	BEMPORAD	73	CNTR +	10–16 $K^+ A$

 $\Gamma(K \pi \pi)/\Gamma((K \pi)^\pm)$  $\Gamma_6/\Gamma_2$ 

VALUE	CL%	DOCUMENT ID	TECN	CHG	COMMENT
<b>&lt; 7 × 10<sup>-4</sup></b>	95	JONGEJANS	78	HBC	4 $K^- p \rightarrow p \bar{K}^0 2\pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
< 20 × 10 <sup>-4</sup>		WOJCICKI	64	HBC -	1.7 $K^- p \rightarrow \bar{K}^0 \pi^- p$

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