NODE=M094

$K^*(1410)$ $I(J^P) = \frac{1}{2}(1^-)$

$K^*(1410)$ T-MATRIX POLE $\sqrt{s}$

NODE=M094PP

Note that $\Gamma = -2\ \text{Im}(\sqrt{s})$.

NODE=M094PP

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
$(1368 \pm 38) - i\,(106^{+48}_{-59})$ OUR ESTIMATE			
$(1368 \pm 38) - i\,(106^{+48}_{-59})$	[1] PELAEZ 17	RVUE	$\pi K \to \pi K$

NODE=M094PP
→ UNCHECKED ←
OCCUR=2

[1] Reanalysis of ESTABROOKS 78 and ASTON 88 satisfying Forward Dispersion Relations and using sequences of Pade approximants.

NODE=M094PP;LINKAGE=B

$K^*(1410)$ MASS

NODE=M094M

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
1414±15 OUR AVERAGE		Error includes scale factor of 1.3.			
$1380 \pm 21 \pm 19$		ASTON 88	LASS	0	11 $K^- p \to K^- \pi^+ n$
$1420 \pm 7 \pm 10$		ASTON 87	LASS	0	11 $K^- p \to \overline{K}^0 \pi^+ \pi^- n$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1437 \pm 8 \pm 16$	190k	[1] AAIJ 16N	LHCB		$D^0 \to (K^0_S \pi^\mp) K^\pm$
$1426 \pm 8 \pm 24$	190k	[2] AAIJ 16N	LHCB		$D^0 \to K^0_S (K^\pm \pi^\mp)$
1276^{+72}_{-77}		[3,4] BOITO 09	RVUE		$\tau^- \to K^0_S \pi^- \nu_\tau$
1367 ± 54		BIRD 89	LASS	−	11 $K^- p \to \overline{K}^0 \pi^- p$
1474 ± 25		BAUBILLIER 82B	HBC	0	8.25 $K^- p \to \overline{K}^0 2\pi n$
1500 ± 30		ETKIN 80	MPS	0	6 $K^- p \to \overline{K}^0 \pi^+ \pi^- n$

NODE=M094M
OCCUR=2

[1] Using a parametrization for the $K\pi$ S-wave similar to ASTON 88 with fixed resonance width.
[2] Using a $K\pi$ S-wave parametrization with resonant and non-resonant contributions.
[3] From the pole position of the $K\pi$ vector form factor in the complex s-plane and using EPIFANOV 07 data.
[4] Systematic uncertainties not estimated.

NODE=M094M;LINKAGE=A
NODE=M094M;LINKAGE=C
NODE=M094M;LINKAGE=BI
NODE=M094M;LINKAGE=NS

$K^*(1410)$ WIDTH

NODE=M094W

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
232± 21 OUR AVERAGE		Error includes scale factor of 1.1.			
$176 \pm 52 \pm 22$		ASTON 88	LASS	0	11 $K^- p \to K^- \pi^+ n$
$240 \pm 18 \pm 12$		ASTON 87	LASS	0	11 $K^- p \to \overline{K}^0 \pi^+ \pi^- n$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$210 \pm 20 \pm 60$	190k	[1] AAIJ 16N	LHCB		$D^0 \to (K^0_S \pi^\mp) K^\pm$
$270 \pm 20 \pm 40$	190k	[1] AAIJ 16N	LHCB		$D^0 \to K^0_S (K^\pm \pi^\mp)$
198^{+61}_{-87}		[2,3] BOITO 09	RVUE		$\tau^- \to K^0_S \pi^- \nu_\tau$
114 ± 101		BIRD 89	LASS	−	11 $K^- p \to \overline{K}^0 \pi^- p$
275 ± 65		BAUBILLIER 82B	HBC	0	8.25 $K^- p \to \overline{K}^0 2\pi n$
500 ± 100		ETKIN 80	MPS	0	6 $K^- p \to \overline{K}^0 \pi^+ \pi^- n$

NODE=M094W
OCCUR=2

[1] Using a $K\pi$ S-wave parametrization with resonant and non-resonant contributions.
[2] From the pole position of the $K\pi$ vector form factor in the complex s-plane and using EPIFANOV 07 data.
[3] Systematic uncertainties not estimated.

NODE=M094W;LINKAGE=A
NODE=M094W;LINKAGE=BI
NODE=M094W;LINKAGE=NS

$K^*(1410)$ DECAY MODES

NODE=M094215;NODE=M094

	Mode	Fraction (Γ_i/Γ)	Confidence level	
Γ_1	$K^*(892)\pi$	> 40 %	95%	DESIG=2
Γ_2	$K\pi$	(6.6 ± 1.3) %		DESIG=1
Γ_3	$K\rho$	< 7 %	95%	DESIG=3;OUR EST;→ UNCHECKED ←
Γ_4	γK^0	$< 2.3 \times 10^{-4}$	90%	DESIG=4
Γ_5	$K\phi$	seen		DESIG=5

$K^*(1410)$ PARTIAL WIDTHS

NODE=M094217

$\Gamma(\gamma K^0)$ Γ_4

NODE=M094W1
NODE=M094W1

VALUE (keV)	CL%	DOCUMENT ID	TECN	COMMENT
<52.9	90	ALAVI-HARATI 02B	KTEV	$K + A \to K^* + A$

$K^*(1410)$ BRANCHING RATIOS

NODE=M094220

$\Gamma(K\rho)/\Gamma(K^*(892)\pi)$ Γ_3/Γ_1

NODE=M094R1
NODE=M094R1

VALUE	CL%	DOCUMENT ID	TECN	CHG	COMMENT
<0.17	95	ASTON 84	LASS	0	11 $K^- p \to \overline{K}^0 2\pi n$

$\Gamma(K\pi)/\Gamma(K^*(892)\pi)$ Γ_2/Γ_1

NODE=M094R2
NODE=M094R2

VALUE	CL%	DOCUMENT ID	TECN	CHG	COMMENT
<0.16	95	ASTON 84	LASS	0	11 $K^- p \to \overline{K}^0 2\pi n$

$\Gamma(K\pi)/\Gamma_{total}$ Γ_2/Γ

NODE=M094R3
NODE=M094R3

VALUE	DOCUMENT ID	TECN	CHG	COMMENT
0.066±0.010±0.008	ASTON 88	LASS	0	11 $K^- p \to K^- \pi^+ n$

$\Gamma(K\phi)/\Gamma_{total}$ Γ_5/Γ

NODE=M094R00
NODE=M094R00

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
seen	24k	[1] AAIJ 21E	LHCB	$B^+ \to J/\psi \phi K^+$

[1] From an amplitude analysis of the decay $B^+ \to J/\psi \phi K^+$ with a significance of 7.7 σ.

NODE=M094R00;LINKAGE=A

$K^*(1410)$ REFERENCES

NODE=M094

AAIJ	21E	PRL 127 082001	R. Aaij *et al.*	(LHCb Collab.)	REFID=61150
PELAEZ	17	EPJ C77 91	J.R. Pelaez, A.Rodas, J.R. de Elvira		REFID=57836
AAIJ	16N	PR D93 052018	R. Aaij *et al.*	(LHCb Collab.)	REFID=57273
BOITO	09	EPJ C59 821	D.R. Boito, R. Escribano, M. Jamin		REFID=52728
EPIFANOV	07	PL B654 65	D. Epifanov *et al.*	(BELLE Collab.)	REFID=51929
ALAVI-HARATI	02B	PRL 89 072001	A. Alavi-Harati *et al.*	(FNAL KTeV Collab.)	REFID=48822
BIRD	89	SLAC-332	P.F. Bird	(SLAC)	REFID=41002
ASTON	88	NP B296 493	D. Aston *et al.*	(SLAC, NAGO, CINC, INUS)	REFID=40262
ASTON	87	NP B292 693	D. Aston *et al.*	(SLAC, NAGO, CINC, INUS)	REFID=40234
ASTON	84	PL 149B 258	D. Aston *et al.*	(SLAC, CARL, OTTA) JP	REFID=22689
BAUBILLIER	82B	NP B202 21	M. Baubillier *et al.*	(BIRM, CERN, GLAS+)	REFID=22551
ETKIN	80	PR D22 42	A. Etkin *et al.*	(BNL, CUNY) JP	REFID=22545
ESTABROOKS	78	NP B133 490	P.G. Estabrooks *et al.*	(MCGI, CARL, DURH+)	REFID=22443