$K_0^*(1430)$

$I(J^P) = \frac{1}{2}(0^+)$

See our minireview in the 1994 edition and in this edition under the $f_0(600)$.

$K_0^*(1430)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
1414 ± 6 OUR AVERAGE						
1455 ±20±15		ABLIKIM	05Q	BES2		$\psi(2S) \to \gamma \pi^+ \pi^- K^+ K^-$
1412 ± 6		[1] ASTON	88	LASS	0	11 $K^- p \to K^- \pi^+ n$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
1406 ±29		[2] BUGG	06	RVUE		
1435 ± 6		[3] ZHOU	06	RVUE		$K p \to K^- \pi^+ n$
1456 ± 8		[4] ZHENG	04	RVUE		$K^- p \to K^- \pi^+ n$
~ 1419		[5] BUGG	03	RVUE		11 $K^- p \to K^- \pi^+ n$
~ 1440		[6] LI	03	RVUE		11 $K^- p \to K^- \pi^+ n$
1459 ± 9	15090	[7] AITALA	02	E791		$D^+ \to K^- \pi^+ \pi^+$
~ 1440		[8] JAMIN	00	RVUE		$K p \to K p$
1436 ± 8		[9] BARBERIS	98E	OMEG		450 $p p \to p_f p_s K^+ K^- \pi^+ \pi^-$
1415 ±25		[5] ANISOVICH	97C	RVUE		11 $K^- p \to K^- \pi^+ n$
~ 1450		[10] TORNQVIST	96	RVUE		$\pi\pi \to \pi\pi$, $K\overline{K}$, $K\pi$
~ 1430		BAUBILLIER	84B	HBC	−	8.25 $K^- p \to \overline{K}^0 \pi^- p$
~ 1425		[11,12] ESTABROOKS	78	ASPK		13 $K^\pm p \to K^\pm \pi^\pm (n, \Delta)$
~ 1450.0		MARTIN	78	SPEC		10 $K^\pm p \to K_S^0 \pi p$

[1] Uses a model for the background, without this background they get a mass 1340 MeV, where the phase shift passes 90°.
[2] S-matrix pole. Reanalysis of ASTON 88, AITALA 02, and ABLIKIM 06C including the κ with an s-dependent width and an Adler zero near threshold.
[3] S-matrix pole. Using ASTON 88 and assuming $K_0^*(800)$, $K_0^*(1950)$.
[4] Using ASTON 88 and assuming $K_0^*(800)$.
[5] T-matrix pole. Reanalysis of ASTON 88 data.
[6] Breit-Wigner fit. Using ASTON 88.
[7] Assuming a low-mass scalar $K\pi$ resonance, $\kappa(800)$.
[8] T-matrix pole. Using data from ESTABROOKS 78 and ASTON 88.
[9] J^P not determined, could be $K_2^*(1430)$.
[10] T-matrix pole.
[11] Mass defined by pole position.
[12] From elastic $K\pi$ partial-wave analysis.

$K_0^*(1430)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
290±21 OUR AVERAGE						
$270\pm45^{+30}_{-35}$		ABLIKIM	05Q	BES2		$\psi(2S) \to \gamma\pi^+\pi^-K^+K^-$
294±23		ASTON	88	LASS	0	11 $K^- p \to K^-\pi^+ n$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
350±40		[13] BUGG	06	RVUE		
288±22		[14] ZHOU	06	RVUE		$K p \to K^-\pi^+ n$
217±31		[15] ZHENG	04	RVUE		$K^- p \to K^-\pi^+ n$
∼ 316		[16] BUGG	03	RVUE		11 $K^- p \to K^-\pi^+ n$
∼ 350		[17] LI	03	RVUE		11 $K^- p \to K^-\pi^+ n$
175±17	15090	[18] AITALA	02	E791		$D^+ \to K^-\pi^+\pi^+$
∼ 300		[19] JAMIN	00	RVUE		$K p \to K p$
196±45		[20] BARBERIS	98E	OMEG		450 $p p \to p_f p_s K^+ K^- \pi^+\pi^-$
330±50		[16] ANISOVICH	97C	RVUE		11 $K^- p \to K^-\pi^+ n$
∼ 320		[21] TORNQVIST	96	RVUE		$\pi\pi \to \pi\pi$, $K\overline{K}$, $K\pi$
∼ 200		BAUBILLIER	84B	HBC	−	8.25 $K^- p \to \overline{K}^0\pi^- p$
200 to 300		[22] ESTABROOKS	78	ASPK		13 $K^\pm p \to K^\pm\pi^\pm(n,\Delta)$

[13] S-matrix pole. Reanalysis of ASTON 88, AITALA 02, and ABLIKIM 06C including the κ with an s-dependent width and an Adler zero near threshold.
[14] S-matrix pole. Using ASTON 88 and assuming $K_0^*(800)$, $K_0^*(1950)$.
[15] Using ASTON 88 and assuming $K_0^*(800)$.
[16] T-matrix pole. Reanalysis of ASTON 88 data.
[17] Breit-Wigner fit. Using ASTON 88.
[18] Assuming a low-mass scalar $K\pi$ resonance, $\kappa(800)$.
[19] T-matrix pole. Using data from ESTABROOKS 78 and ASTON 88.
[20] J^P not determined, could be $K_2^*(1430)$.
[21] T-matrix pole.
[22] From elastic $K\pi$ partial-wave analysis.

$K_0^*(1430)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$K\pi$	(93±10) %

$K_0^*(1430)$ BRANCHING RATIOS

$\Gamma(K\pi)/\Gamma_{total}$ **Γ_1/Γ**

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
0.93±0.04±0.09	ASTON	88	LASS	0	11 $K^- p \to K^-\pi^+ n$

$K_0^*(1430)$ REFERENCES

ABLIKIM	06C	PL B633 681	M. Ablikim *et al.*	(BES Collab.)
BUGG	06	PL B632 471	D.V. Bugg	(LOQM)
ZHOU	06	NP A775 212	Z.Y. Zhou, H.Q. Zheng	
ABLIKIM	05Q	PR D72 092002	M. Ablikim *et al.*	(BES Collab.)
ZHENG	04	NP A733 235	H.Q. Zheng *et al.*	
BUGG	03	PL B572 1	D.V. Bugg	
LI	03	PR D67 034025	L. Li, B. Zou, G. Li	
AITALA	02	PRL 89 121801	E.M. Aitala *et al.*	(FNAL E791 Collab.)
JAMIN	00	NP B587 331	M. Jamin *et al.*	
BARBERIS	98E	PL B436 204	D. Barberis *et al.*	(Omega Expt.)
ANISOVICH	97C	PL B413 137	A.V. Anisovich, A.V. Sarantsev	
TORNQVIST	96	PRL 76 1575	N.A. Tornqvist, M. Roos	(HELS)
ASTON	88	NP B296 493	D. Aston *et al.*	(SLAC, NAGO, CINC, INUS)
BAUBILLIER	84B	ZPHY C26 37	M. Baubillier *et al.*	(BIRM, CERN, GLAS+)
ESTABROOKS	78	NP B133 490	P.G. Estabrooks *et al.*	(MCGI, CARL, DURH+)
MARTIN	78	NP B134 392	A.D. Martin *et al.*	(DURH, GEVA)

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VANBEVEREN	99	EPJ C10 469	E. van Beveren, G. Rupp	
TORNQVIST	82	PRL 49 624	N.A. Tornqvist	(HELS)
GOLDBERG	69	PL 30B 434	J. Goldberg *et al.*	(SABRE Collab.)
TRIPPE	68	PL 28B 203	T.G. Trippe *et al.*	(UCLA)