$K_0^*(1430)$

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

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		
1456 ± 8		[3] ZHENG	04	RVUE		$K^- p \to K^-\pi^+ n$
~ 1419		[4] BUGG	03	RVUE		11 $K^- p \to K^-\pi^+ n$
~ 1440		[5] LI	03	RVUE		11 $K^- p \to K^-\pi^+ n$
1459 ± 9	15090	[6] AITALA	02	E791		$D^+ \to K^-\pi^+\pi^+$
~ 1440		[7] JAMIN	00	RVUE		$Kp \to Kp$
1436 ± 8		[8] BARBERIS	98E	OMEG		450 $pp \to p_f p_s K^+K^-\pi^+\pi^-$
1415 ±25		[4] ANISOVICH	97C	RVUE		11 $K^- p \to K^-\pi^+ n$
~ 1450		[9] 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		[10,11] ESTABROOKS	78	ASPK		13 $K^\pm p \to K^\pm\pi^\pm(n,\Delta)$
~ 1450.0		MARTIN	78	SPEC		10 $K^\pm p \to K^0_S\pi p$

[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] Using ASTON 88 and assuming $K_0^*(800)$.
[4] T-matrix pole. Reanalysis of ASTON 88 data.
[5] Breit-Wigner fit. Using ASTON 88.
[6] Assuming a low-mass scalar $K\pi$ resonance, $\kappa(800)$.
[7] T-matrix pole. Using data from ESTABROOKS 78 and ASTON 88.
[8] J^P not determined, could be $K_2^*(1430)$.
[9] T-matrix pole.
[10] Mass defined by pole position.
[11] From elastic $K\pi$ partial-wave analysis.

$K_0^*(1430)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
290±21 OUR AVERAGE						
$270 \pm 45^{+30}_{-35}$		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		[12] BUGG	06	RVUE		
217 ± 31		[13] ZHENG	04	RVUE		$K^- p \to K^- \pi^+ n$
~ 316		[14] BUGG	03	RVUE		11 $K^- p \to K^- \pi^+ n$
~ 350		[15] LI	03	RVUE		11 $K^- p \to K^- \pi^+ n$
175 ± 17	15090	[16] AITALA	02	E791		$D^+ \to K^- \pi^+ \pi^+$
~ 300		[17] JAMIN	00	RVUE		$K p \to K p$
196 ± 45		[18] BARBERIS	98E	OMEG		450 $p p \to$ $p_f p_s K^+ K^- \pi^+ \pi^-$
330 ± 50		[14] ANISOVICH	97C	RVUE		11 $K^- p \to K^- \pi^+ n$
~ 320		[19] 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		[20] ESTABROOKS	78	ASPK		13 $K^\pm p \to$ $K^\pm \pi^\pm (n, \Delta)$

[12] 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.
[13] Using ASTON 88 and assuming $K_0^*(800)$.
[14] T-matrix pole. Reanalysis of ASTON 88 data.
[15] Breit-Wigner fit. Using ASTON 88.
[16] Assuming a low-mass scalar $K\pi$ resonance, $\kappa(800)$.
[17] T-matrix pole. Using data from ESTABROOKS 78 and ASTON 88.
[18] J^P not determined, could be $K_2^*(1430)$.
[19] T-matrix pole.
[20] 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
$0.93 \pm 0.04 \pm 0.09$	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)
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)

OTHER RELATED PAPERS

AUBERT,B	05N	PR D72 072003	B. Aubert *et al.*	(BABAR Collab.)
BUGG	05A	EPJ A25 107	D.V. Bugg	(LOQM)
BUGG	05B	EPJ A26 151	D.V. Bugg	(LOQM)
AUBERT,B	04O	PR D70 091103R	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04P	PR D70 092001	B. Aubert *et al.*	(BABAR Collab.)
SHAKIN	00	PR D62 114014	C.M. Shakin, H. Wang	
BEVEREN	99	EPJ C10 469	E. Van Beveren, G. Rupp	
OLLER	99	PR D60 099906 (erratum)	J.A. Oller *et al.*	
OLLER	99C	PR D60 074023	J.A. Oller, E. Oset	
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)