$K_0^*(1430)$

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

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		$K p \to K p$
1436 ± 8		[8] BARBERIS	98E	OMEG		450 $p p \to p_f p_s K^+ K^- \pi^+\pi^-$
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 $K^\pm p \to K_S^0 \pi p$

[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] 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						
$270\pm45^{+30}_{-35}$		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		[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±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)
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)