$K_2^*(1980)$

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

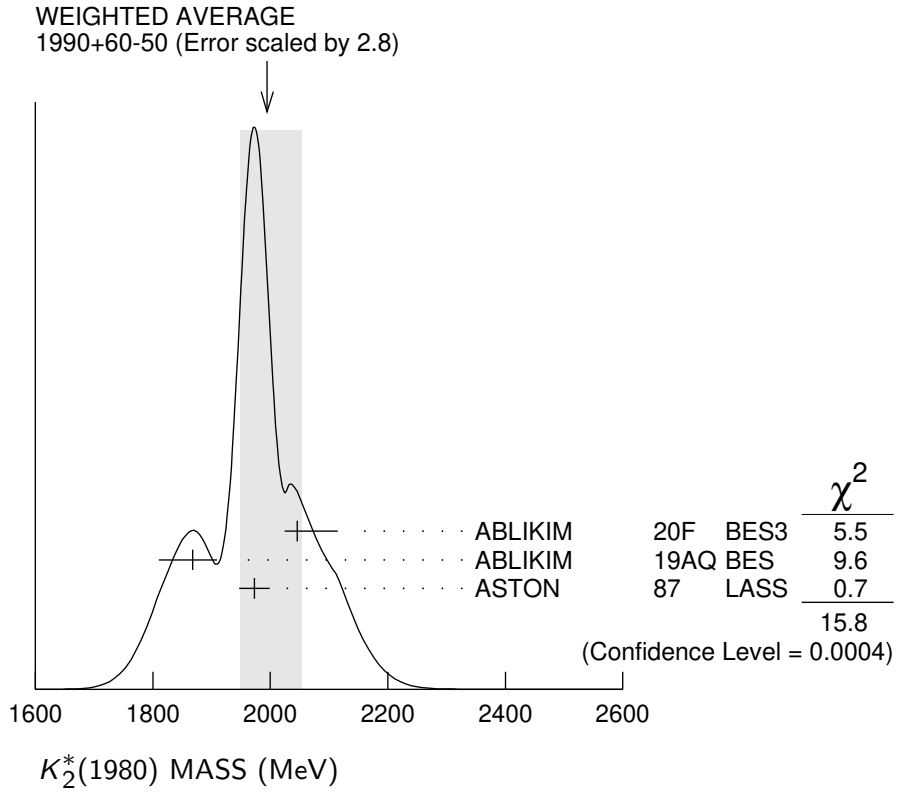
$K_2^*(1980)$ MASS

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1990^{+60}_{-50} OUR AVERAGE		Error includes scale factor of 2.8. See the ideogram below.				
2046^{+17+67}_{-16-15}	1.8k	[1] ABLIKIM	20F	BES3		$\psi(2S) \to K^+K^-\eta$
$1868 \pm 8^{+40}_{-57}$	183k	ABLIKIM	19AQ	BES	$\pm$	$J/\psi \to K^+K^-\pi^0$
$1973 \pm 8 \pm 25$		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. • • •						
$2073 \pm 94^{+245}_{-240}$	4289	[2,3] AAIJ	17C	LHCB		$B^+ \to J/\psi\phi K^+$
2020 ± 20		TIKHOMIROV	03	SPEC		$40.0\ \pi^-\mathrm{C} \to K^0_S K^0_S K^0_L X$
1978 ± 40	241	BIRD	89	LASS	$-$	$11\ K^-p \to \overline{K}^0\pi^-p$

[1] Seen in $\psi(2S)$ decay with branching ratio $\psi(2S) \to K^\pm X \to K^+K^-\eta = (7.0 \pm 0.5^{+3.7}_{-0.6}) \times 10^{-6}$.

[2] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 5.4 σ.

[3] A reanalysis by AAIJ 21E using a larger data sample did not confirm this measurement, the new result having a significance of only 1.6 σ.



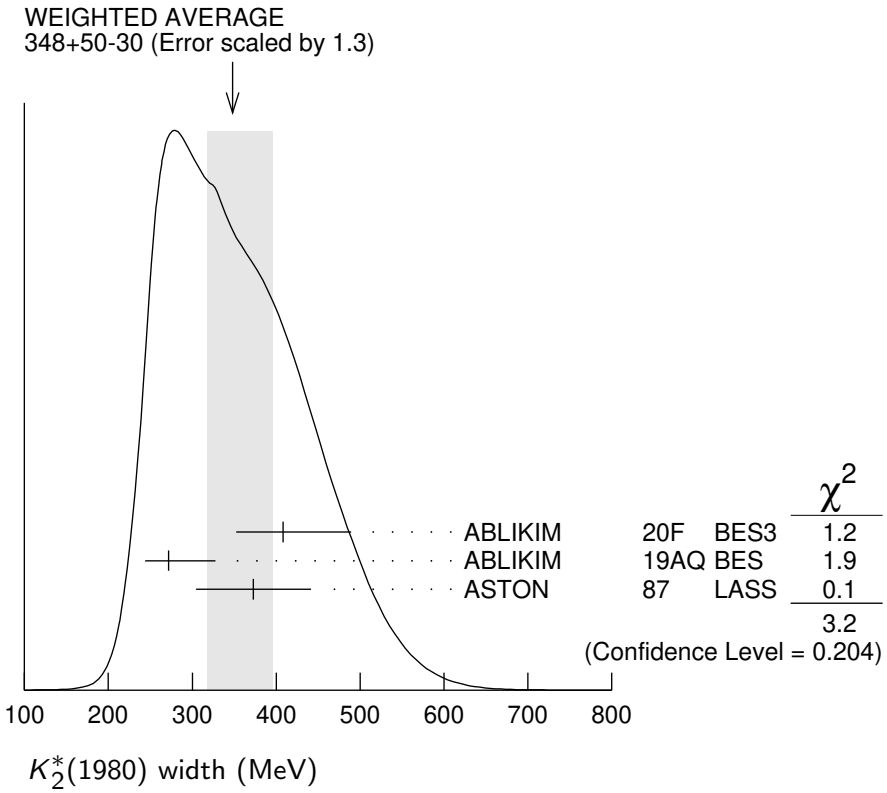
$K_2^*(1980)$ WIDTH

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
348^{+50}_{-30} OUR AVERAGE Error includes scale factor of 1.3. See the ideogram below.						
$408^{+38}_{-34}{}^{+72}_{-44}$	1.8k	[1] ABLIKIM	20F	BES3		$\psi(2S) \to K^+K^-\eta$
$272\pm 24^{+50}_{-15}$	183k	ABLIKIM	19AQ	BES	$\pm$	$J/\psi \to K^+K^-\pi^0$
$373\pm 33\pm 60$		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. • • •						
$678\pm 311^{+1153}_{-559}$	4289	[2,3] AAIJ	17C	LHCB		$B^+ \to J/\psi\phi K^+$
180 ± 70		TIKHOMIROV	03	SPEC		40.0 π^- C $\to K^0_S K^0_S K^0_L$ X
398 ± 47	241	BIRD	89	LASS	$-$	11 $K^-p \to \overline{K}{}^0\pi^-p$

[1] Seen in $\psi(2S)$ decay with branching ratio $\psi(2S) \to K^\pm X \to K^+K^-\eta = (7.0 \pm 0.5^{+3.7}_{-0.6}) \times 10^{-6}$.

[2] From an amplitude analysis of the decay $B^+ \to J/\psi\phi K^+$ with a significance of 5.4 σ.

[3] A reanalysis by AAIJ 21E using a larger data sample did not confirm this measurement, the new result having a significance of only 1.6 σ.



$K_2^*(1980)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$K^*(892)\pi$	possibly seen
Γ_2	$K\rho$	possibly seen
Γ_3	$Kf_2(1270)$	possibly seen
Γ_4	$K\phi$	seen
Γ_5	$K\eta$	seen

$K_2^*(1980)$ BRANCHING RATIOS

$\Gamma(K^*(892)\pi)/\Gamma_{total}$ Γ_1/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
possibly seen	GULER	11	BELL	$B^+ \to J/\psi K^+\pi^+\pi^-$

$\Gamma(K\rho)/\Gamma_{total}$ Γ_2/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
possibly seen	GULER	11	BELL	$B^+ \to J/\psi K^+\pi^+\pi^-$

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

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
1.49±0.24±0.09	ASTON	87	LASS	0	11 $K^- p \to \overline{K}^0\pi^+\pi^- n$

$\Gamma(Kf_2(1270))/\Gamma_{total}$ Γ_3/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
possibly seen	TIKHOMIROV 03	SPEC	40.0 π^- C $\to K_S^0 K_S^0 K_L^0$ X

$\Gamma(K\phi)/\Gamma_{total}$ Γ_4/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
seen	4289	[1,2] AAIJ	17C	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 5.4 σ.
[2] A reanalysis by AAIJ 21E using a larger data sample did not confirm this measurement, the new result having a significance of only 1.6 σ.

$\Gamma(K\eta)/\Gamma_{total}$ Γ_5/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
seen	1.8k	[1] ABLIKIM	20F	BES3	$\psi(2S) \to K^+K^-\eta$
seen	116k	[2] CHEN	20A	BELL	$D^0 \to K^-\pi^+\eta$

[1] Seen decaying to $K\eta$ in an amplitude analysis of $\psi(2S) \to K^+K^-\eta$.
[2] From an amplitude analysis of the decay $D^0 \to K^-\pi^+\eta$ with a significance of 17 σ.

$K_2^*(1980)$ REFERENCES

AAIJ	21E	PRL 127 082001	R. Aaij *et al.*	(LHCb Collab.)
ABLIKIM	20F	PR D101 032008	M. Ablikim *et al.*	(BESIII Collab.)
CHEN	20A	PR D102 012002	Y.Q. Chen *et al.*	(BELLE Collab.)
ABLIKIM	19AQ	PR D100 032004	M. Ablikim *et al.*	(BESIII Collab.)
AAIJ	17C	PRL 118 022003	R. Aaij *et al.*	(LHCb Collab.)
Also		PR D95 012002	R. Aaij *et al.*	(LHCb Collab.)
GULER	11	PR D83 032005	H. Guler *et al.*	(BELLE Collab.)
TIKHOMIROV	03	PAN 66 828	G.D. Tikhomirov *et al.*	
		Translated from YAF 66 860.		
BIRD	89	SLAC-332	P.F. Bird	(SLAC)
ASTON	87	NP B292 693	D. Aston *et al.*	(SLAC, NAGO, CINC, INUS)