

$K_2^*(1980)$

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

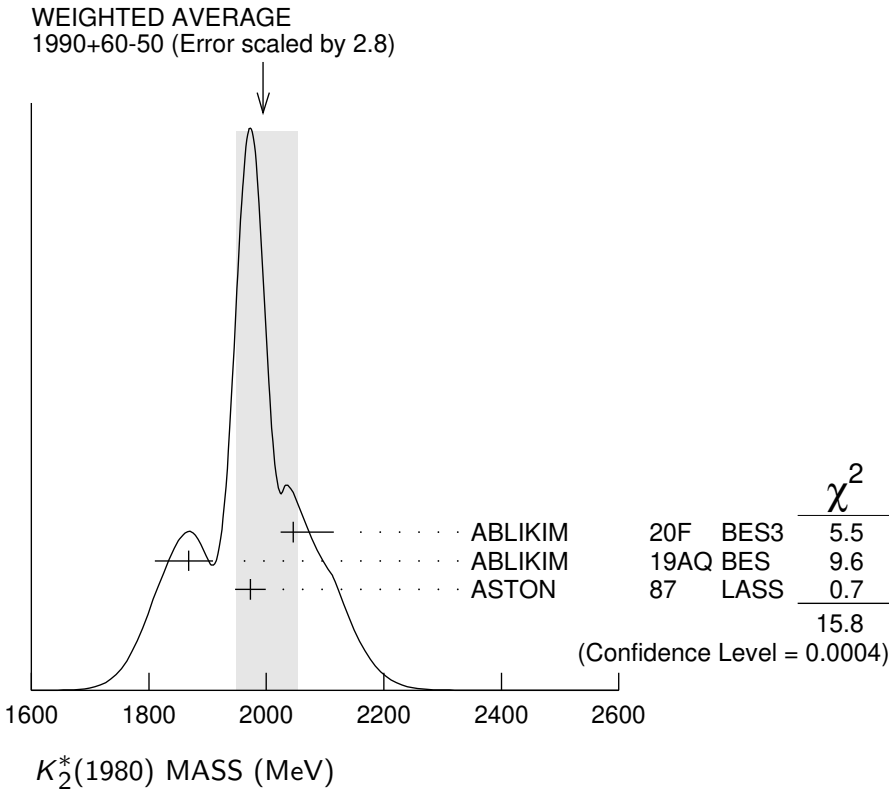
$K_2^*(1980)$ MASS

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 ₋₁₆ ⁺⁶⁷ ₋₁₅	1.8k	¹ ABLIKIM	20F	BES3	$\psi(2S) \rightarrow K^+ K^- \eta$
1868 $\pm$ 8 ⁺⁴⁰ ₋₅₇	183k	ABLIKIM	19AQ	BES	$J/\psi \rightarrow K^+ K^- \pi^0$
1973 $\pm$ 8 $\pm$ 25		ASTON	87	LASS	$0 \quad 11 \quad K^- p \rightarrow \overline{K}^0 \pi^+ \pi^- n$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2073 $\pm$ 94 ⁺²⁴⁵ ₋₂₄₀	4289	^{2,3} AAIJ	17c	LHCB	$B^+ \rightarrow J/\psi \phi K^+$
2020 $\pm$ 20		TIKHOMIROV	03	SPEC	$40.0 \quad \pi^- C \rightarrow K_S^0 K_S^0 K_L^0 X$
1978 $\pm$ 40	241	BIRD	89	LASS	$- \quad 11 \quad K^- p \rightarrow \overline{K}^0 \pi^- p$

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

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

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



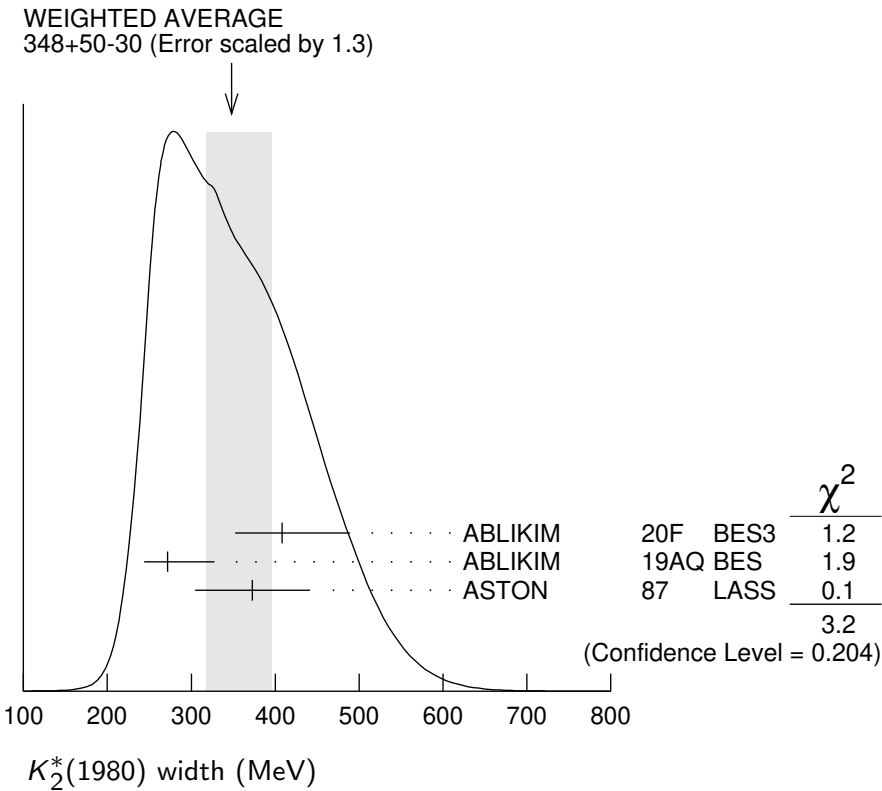
$K_2^*(1980)$ WIDTH

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^{+72}_{-44}	1.8k	¹ ABLIKIM	20F BES3	$\psi(2S) \rightarrow K^+ K^- \eta$
272 ± 24	50^{+50}_{-15}	183k	ABLIKIM	19AQBES	$\pm J/\psi \rightarrow K^+ K^- \pi^0$
373 ± 33	60	ASTON	87 LASS	0	11 $K^- p \rightarrow \bar{K}^0 \pi^+ \pi^- n$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
678 ± 311	1153^{+1153}_{-559}	4289	^{2,3} AAIJ	17c LHCb	$B^+ \rightarrow J/\psi \phi K^+$
180 ± 70			TIKHOMIROV	03 SPEC	$40.0 \pi^- C \rightarrow K_S^0 K_S^0 K_L^0 X$
398 ± 47	241	BIRD	89 LASS	—	11 $K^- p \rightarrow \bar{K}^0 \pi^- p$

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

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

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



$K_2^*(1980)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$K^*(892)\pi$	possibly seen
Γ_2	$K\rho$	possibly seen
Γ_3	$K f_2(1270)$	possibly seen
Γ_4	$K\phi$	seen
Γ_5	$K\eta$	seen

 $K_2^*(1980)$ BRANCHING RATIOS

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

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

$\Gamma(K\rho)/\Gamma_{\text{total}}$ Γ_2/Γ

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

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

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

$\Gamma(K f_2(1270))/\Gamma_{\text{total}}$ Γ_3/Γ

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

$\Gamma(K\phi)/\Gamma_{\text{total}}$ Γ_4/Γ

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
seen	4289	1,2 AAIJ	17C	LHCB $B^+ \rightarrow J/\psi \phi K^+$

¹ From an amplitude analysis of the decay $B^+ \rightarrow J/\psi \phi K^+$ with a significance of 5.4σ .

² A reanalysis by AAIJ 21E using a larger data sample did not confirm this measurement, the new result having a significance of only 1.6σ .

$\Gamma(K\eta)/\Gamma_{\text{total}}$ Γ_5/Γ

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

¹ Seen decaying to $K\eta$ in an amplitude analysis of $\psi(2S) \rightarrow K^+ K^- \eta$.

² From an amplitude analysis of the decay $D^0 \rightarrow K^- \pi^+ \eta$ with a significance of 17σ .

$K_2^*(1980)$ REFERENCES

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