

$a_0(1710)$

$I^G(J^{PC}) = 1^-(0^{++})$

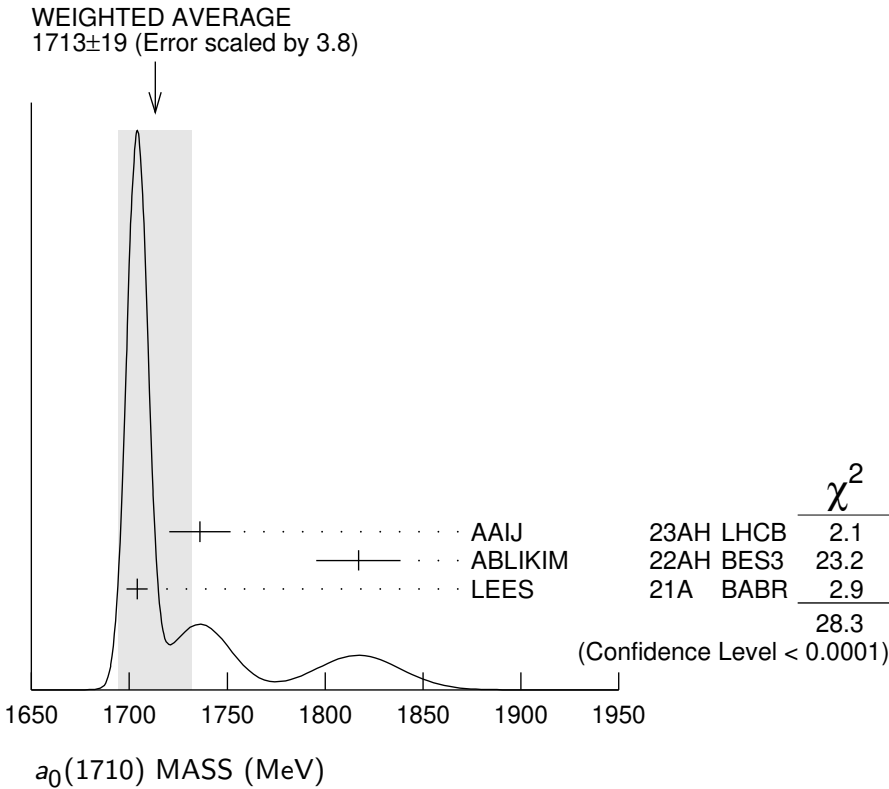
OMITTED FROM SUMMARY TABLE

Evidence for this state is also inferred from the interference of the $K^+ K^-$ and $K_S^0 K_S^0$ decays of the $f_0(1710)$ in $D_s^+ \rightarrow f_0(1710) \pi^+$, leading to a relative branching ratio an order of magnitude larger than expected from isospin symmetry (ABLIKIM 22F). See also the review on "Spectroscopy of Light Meson Resonances."

$a_0(1710)$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
1713±19 OUR AVERAGE	Error includes scale factor of 3.8. See the ideogram below.		
1736±10±12	¹ AAIJ	23AH LHCb	$B^+ \rightarrow K^+ (K_S^0 K \pi)$
1817± 8±20	² ABLIKIM	22AH BES3	$D_s^+ \rightarrow K_S^0 K^+ \pi^0$
1704± 5± 2	LEES	21A BABR	$\eta_c(1S) \rightarrow \pi^+ \pi^- \eta$

¹ From Dalitz plot analyses of $\eta_c(1S, 2S) \rightarrow K_S^0 K^+ \pi^- + c.c..$
² Observed to decay into $K_S^0 K^+$ in a Breit-Wigner amplitude analysis involving D_s^+ decays into $\bar{K}^*(892)^0 K^+$, $\bar{K}^*(892)^+ K_S^0$, $\bar{K}^*(1410)^0 K^+$, $a_0(980)^+ \pi^0$, and $a_0(1817)^+ \pi^0$.



$a_0(1710)$ WIDTH

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
107±15 OUR AVERAGE			
134±17±61	¹ AAIJ	23AH LHCb	$B^+ \rightarrow K^+(K_S^0 K \pi)$
97±22±15	² ABLIKIM	22AH BES3	$D_s^+ \rightarrow K_S^0 K^+ \pi^0$
110±15±11	LEES	21A BABR	$\eta_c(1S) \rightarrow \pi^+ \pi^- \eta$
¹ From Dalitz plot analyses of $\eta_c(1S, 2S) \rightarrow K_S^0 K^+ \pi^- + \text{c.c.}$.			
² Observed to decay into $K_S^0 K^+$ in a Breit-Wigner amplitude analysis involving D_s^+ decays into $\bar{K}^*(892)^0 K^+$, $\bar{K}^*(892)^+ K_S^0$, $\bar{K}^*(1410)^0 K^+$, $a_0(980)^+ \pi^0$, and $a_0(1817)^+ \pi^0$.			

$a_0(1710)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad \pi \eta$	seen
$\Gamma_2 \quad K^+ K^-$	seen
$\Gamma_3 \quad K_S^0 K_S^0$	seen
$\Gamma_4 \quad K_S^0 K^+$	seen

$a_0(1710)$ BRANCHING RATIOS

$\Gamma(\pi \eta)/\Gamma_{\text{total}}$				Γ_1/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
seen	LEES	21A	BABR	$\eta_c(1S) \rightarrow \pi^+ \pi^- \eta$
$\Gamma(K^+ K^-)/\Gamma(K_S^0 K_S^0)$				Γ_2/Γ_3
VALUE	DOCUMENT ID	TECN	COMMENT	
0.32±0.12	¹ ABLIKIM	22F	BES3	$D_s^+ \rightarrow K_S^0 K_S^0 \pi^+$
¹ Using $D_s^+ \rightarrow K^+ K^- \pi^+$ from ABLIKIM 21AE. The apparent violation of isospin symmetry may be due to a destructive interference with the $f_0(1710)$ in the $K^+ K^-$ channel, and a constructive interference in the $K_S^0 K_S^0$ channel.				
$\Gamma(K_S^0 K^+)/\Gamma_{\text{total}}$				Γ_4/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
seen	ABLIKIM	22AH	BES3	$D_s^+ \rightarrow K_S^0 K^+ \pi^0$

$a_0(1710)$ REFERENCES

AAIJ	23AH PR D108 032010	R. Aaij <i>et al.</i>	(LHCb Collab.)
ABLIKIM	22AH PRL 129 182001	M. Ablikim <i>et al.</i>	(BESIII Collab.)
ABLIKIM	22F PR D105 L051103	M. Ablikim <i>et al.</i>	(BESIII Collab.)
ABLIKIM	21AE PR D104 012016	M. Ablikim <i>et al.</i>	(BESIII Collab.)
LEES	21A PR D104 072002	J.P. Lees <i>et al.</i>	(BABAR Collab.)