

$a_0(1710)$

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

OMITTED FROM SUMMARY TABLE

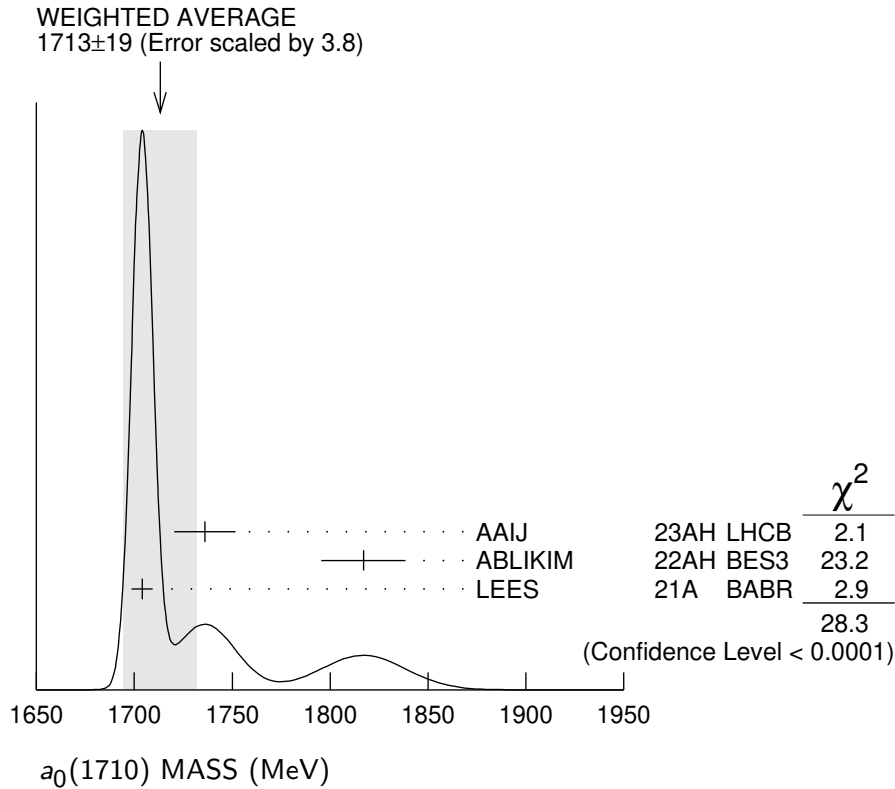
Evidence for this state is also inferred from the interference of the $K^+ K^-$ and $K_S^0 K_S^0$ decays of the $f_0(1710)$ in $D_s^+ \rightarrow f_0(1710)\pi^+$, leading to a relative branching ratio an order of magnitude larger than expected from isospin symmetry (ABLIKIM 22F). See also the review 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			
$134 \pm 17 \pm 61$	¹ AAIJ	23AH LHCB	$B^+ \rightarrow K^+(K_S^0 K \pi)$
$97 \pm 22 \pm 15$	² ABLIKIM	22AH BES3	$D_s^+ \rightarrow K_S^0 K^+ \pi^0$
$110 \pm 15 \pm 11$	LEES	21A BABR	$\eta_c(1S) \rightarrow \pi^+ \pi^- \eta$

¹ From Dalitz plot analyses of $\eta_c(1S, 2S) \rightarrow K_S^0 K^+ \pi^- + c.c..$

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)
Γ_1 $\pi \eta$	seen
Γ_2 $K^+ K^-$	seen
Γ_3 $K_S^0 K_S^0$	seen
Γ_4 $K_S^0 K^+$	seen

 $a_0(1710)$ BRANCHING RATIOS

$\Gamma(\pi \eta)/\Gamma_{\text{total}}$	DOCUMENT ID	TECN	COMMENT	Γ_1/Γ
VALUE				
seen	LEES	21A BABR	$\eta_c(1S) \rightarrow \pi^+ \pi^- \eta$	

$\Gamma(K^+ K^-)/\Gamma(K_S^0 K_S^0)$	DOCUMENT ID	TECN	COMMENT	Γ_2/Γ_3
VALUE				
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.

$\Gamma(K_S^0 K^+)/\Gamma_{\text{total}}$	DOCUMENT ID	TECN	COMMENT	Γ_4/Γ
VALUE				
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.)