NODE=M263

$a_0(1710)$

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

OMITTED FROM SUMMARY TABLE

Evidence for this state is also inferred from the interference of the K^+K^- and $K^0_S K^0_S$ decays of the $f_0(1710)$ in $D_s^+ \to f_0(1710)\pi^+$, 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."

NODE=M263

$a_0(1710)$ MASS

NODE=M263M

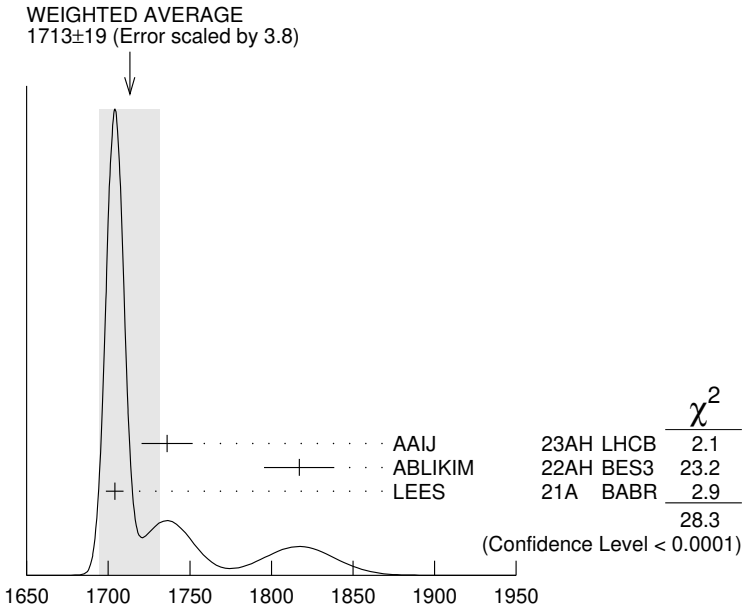
VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
1713±19 OUR AVERAGE Error includes scale factor of 3.8. See the ideogram below. [1711 ± 27 MeV OUR 2023 AVERAGE Scale factor = 5.1]			
1736±10±12	[1] AAIJ	23AH LHCB	$B^+ \to K^+(K^0_S K\pi)$
1817± 8±20	[2] ABLIKIM	22AH BES3	$D_s^+ \to K^0_S K^+\pi^0$
1704± 5± 2	LEES	21A BABR	$\eta_c(1S) \to \pi^+\pi^-\eta$

[1] From Dalitz plot analyses of $\eta_c(1S,2S) \to K^0_S K^+\pi^- +$ c.c..

[2] Observed to decay into $K^0_S K^+$ in a Breit-Wigner amplitude analysis involving D_s^+ decays into $\overline{K}^*(892)^0 K^+$, $\overline{K}^*(892)^+ K^0_S$, $\overline{K}^*(1410)^0 K^+$, $a_0(980)^+\pi^0$, and $a_0(1817)^+\pi^0$.

NODE=M263M;LINKAGE=B

NODE=M263M;LINKAGE=A



$a_0(1710)$ WIDTH

NODE=M263W

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
107±15 OUR AVERAGE [106 ± 15 MeV OUR 2023 AVERAGE]			
134±17±61	[1] AAIJ	23AH LHCB	$B^+ \to K^+(K^0_S K\pi)$
97±22±15	[2] ABLIKIM	22AH BES3	$D_s^+ \to K^0_S K^+\pi^0$
110±15±11	LEES	21A BABR	$\eta_c(1S) \to \pi^+\pi^-\eta$

[1] From Dalitz plot analyses of $\eta_c(1S,2S) \to K^0_S K^+\pi^- +$ c.c..

[2] Observed to decay into $K^0_S K^+$ in a Breit-Wigner amplitude analysis involving D_s^+ decays into $\overline{K}^*(892)^0 K^+$, $\overline{K}^*(892)^+ K^0_S$, $\overline{K}^*(1410)^0 K^+$, $a_0(980)^+\pi^0$, and $a_0(1817)^+\pi^0$.

NODE=M263W

NODE=M263W

NODE=M263W;LINKAGE=B

NODE=M263W;LINKAGE=A

$a_0(1710)$ DECAY MODES

NODE=M263215;NODE=M263

	Mode	Fraction (Γ_i/Γ)	
Γ_1	$\pi\eta$	seen	DESIG=1;OUR EVAL;→ UNCHECKED ←
Γ_2	K^+K^-	seen	DESIG=2;OUR EVAL;→ UNCHECKED ←
Γ_3	$K^0_S K^0_S$	seen	DESIG=3;OUR EVAL;→ UNCHECKED ←
Γ_4	$K^0_S K^+$	seen	DESIG=4;OUR EVAL;→ UNCHECKED ←

$\Gamma(\pi\eta)/\Gamma_{\text{total}}$ Γ_1/Γ

NODE=M263R01
NODE=M263R01

VALUE	DOCUMENT ID		TECN	COMMENT
seen	LEES	21A	BABR	$\eta_c(1S) \to \pi^+\pi^-\eta$

$\Gamma(K^+K^-)/\Gamma(K^0_S K^0_S)$ Γ_2/Γ_3

NODE=M263R00
NODE=M263R00

VALUE	DOCUMENT ID		TECN	COMMENT
0.32±0.12	[1] ABLIKIM	22F	BES3	$D_s^+ \to K^0_S K^0_S \pi^+$

OCCUR=2

[1] Using $D_s^+ \to K^+K^-\pi^+$ 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 $K^0_S K^0_S$ channel.

NODE=M263R00;LINKAGE=B

$\Gamma(K^0_S K^+)/\Gamma_{\text{total}}$ Γ_4/Γ

NODE=M263R02
NODE=M263R02

VALUE	DOCUMENT ID		TECN	COMMENT
seen	ABLIKIM	22AH	BES3	$D_s^+ \to K^0_S K^+\pi^0$

$a_0(1710)$ REFERENCES

NODE=M263

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

REFID=62349
REFID=61880
REFID=61641
REFID=61367
REFID=61442