$f_0(1770)$

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

OMITTED FROM SUMMARY TABLE

See the review on "Spectroscopy of Light Meson Resonances."

$f_0(1770)$ Breit-Wigner MASS

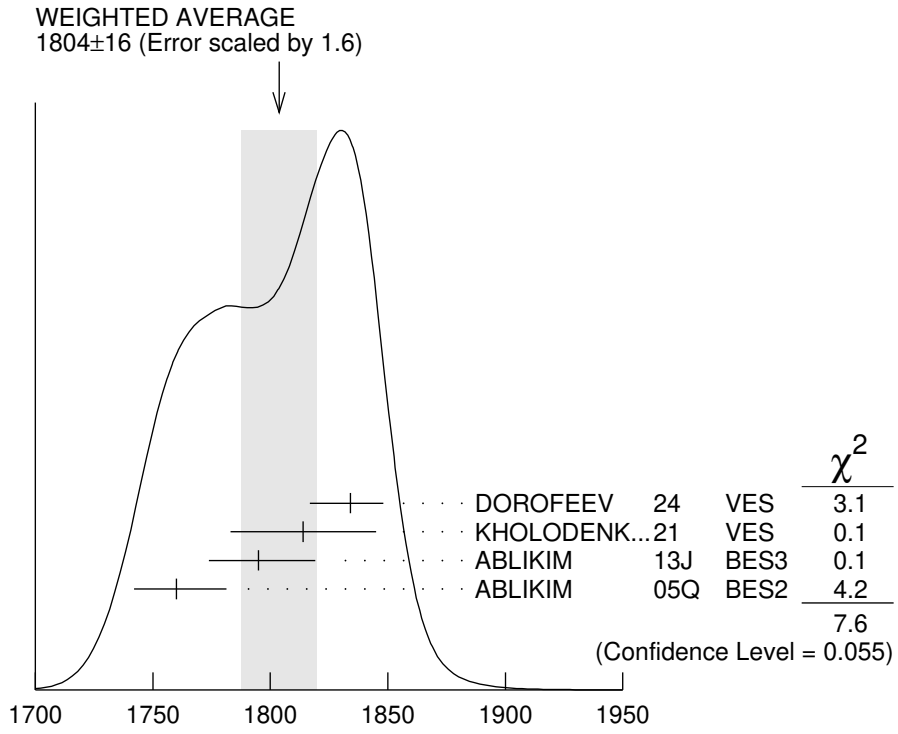
VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1804±16 OUR AVERAGE		Error includes scale factor of 1.6. See the ideogram below.			
$1834 \pm 14^{+\ 2}_{-10}$		DOROFEEV	24	VES	29 π^- Be $\rightarrow$ A$\omega\phi$
1814 ± 31	7.2k	[1] KHOLODENK..	21	VES	29 $\pi^- p \rightarrow n\omega\phi$
$1795 \pm\ 7^{+23}_{-20}$		ABLIKIM	13J	BES3	$J/\psi \rightarrow \gamma\omega\phi$
$1760 \pm 15^{+15}_{-10}$		ABLIKIM	05Q	BES2	$\psi(2S) \rightarrow \gamma\pi^+\pi^- K^+ K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1765 ± 15		SARANTSEV	21	RVUE	$J/\psi \rightarrow \gamma\,(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$
1814 ± 18		[2,3] AAIJ	14BR	LHCB	$\overline{B}{}^0_s \rightarrow J/\psi\pi^+\pi^-$
$1812^{+19}_{-26} \pm 18$		[4] ABLIKIM	06J	BES2	$J/\psi \rightarrow \gamma\omega\phi$
1790^{+40}_{-30}		ABLIKIM	05	BES2	$J/\psi \rightarrow \phi\pi^+\pi^-$

[1] From partial wave analysis of $\omega\phi$ invariant mass including 0^{++}, 2^{++}, and 0^{-+} resonances.

[2] Second solution: 1800 ± 22 MeV. The fit favors $f_0(1770)$ to $f_0(1710)$.

[3] Statistical error only.

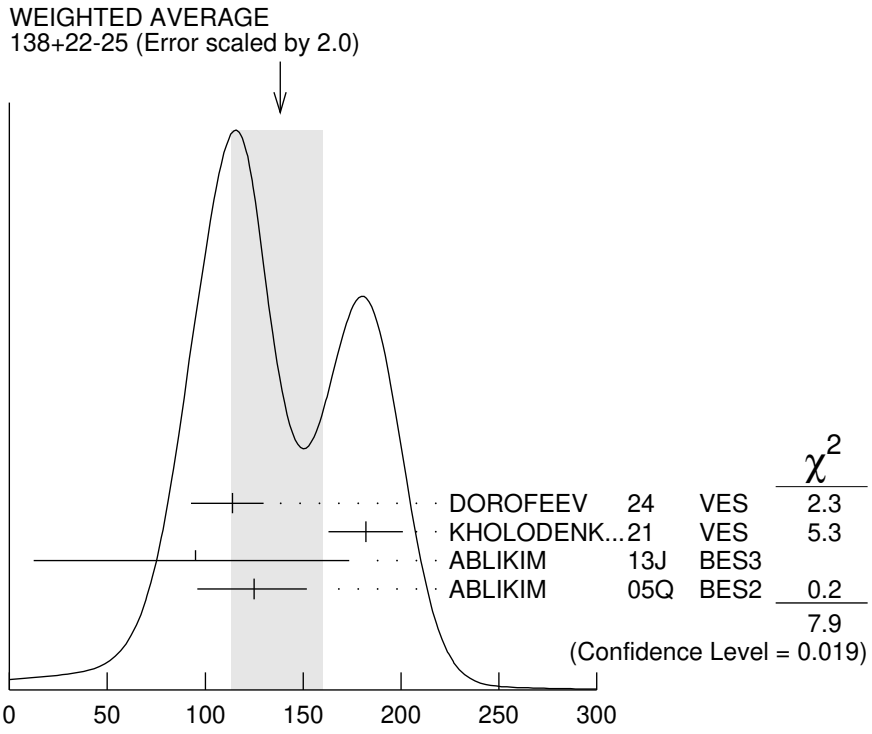
[4] Not seen by LIU 09 in $B^\pm \rightarrow K^\pm\omega\phi$.



$f_0(1770)$ Breit-Wigner WIDTH

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
138^{+22}_{-25} OUR AVERAGE		Error includes scale factor of 2.0. See the ideogram below.			
$114 \pm 15^{+5}_{-15}$		DOROFEEV	24	VES	29 π^- Be $\rightarrow$ A$\omega\phi$
182 ± 19	7.2k	[1] KHOLODENK..	21	VES	29 $\pi^- p \rightarrow n\omega\phi$
$95 \pm 10^{+78}_{-82}$		ABLIKIM	13J	BES3	$J/\psi \rightarrow \gamma\omega\phi$
$125 \pm 25^{+10}_{-15}$		ABLIKIM	05Q	BES2	$\psi(2S) \rightarrow \gamma\pi^+\pi^- K^+ K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
180 ± 20		SARANTSEV	21	RVUE	$J/\psi \rightarrow \gamma$ ($\pi\pi$, $K\overline{K}$, $\eta\eta$, $\omega\phi$)
328 ± 34		[2,3] AAIJ	14BR	LHCB	$\overline{B}{}^0_s \rightarrow J/\psi\pi^+\pi^-$
$105 \pm 20 \pm 28$		[4] ABLIKIM	06J	BES2	$J/\psi \rightarrow \gamma\omega\phi$
270^{+60}_{-30}		[5] ABLIKIM	05	BES2	$J/\psi \rightarrow \phi\pi^+\pi^-$

[1] From partial wave analysis of $\omega\phi$ invariant mass including 0^{++}, 2^{++}, and 0^{-+} resonances.
[2] Second solution: 263 $\pm$ 30 MeV. The fit favors $f_0(1770)$ to $f_0(1710)$.
[3] Statistical error only.
[4] Not seen by LIU 09 in $B^\pm \rightarrow K^\pm\omega\phi$.
[5] $f_0(1710)$ width fixed to PDG value.



$f_0(1770)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\pi\pi$	seen
Γ_2	$K\overline{K}$	seen
Γ_3	$\eta\eta$	seen
Γ_4	$\omega\phi$	seen

$f_0(1770)$ BRANCHING RATIOS

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

VALUE	DOCUMENT ID		TECN	COMMENT
seen	SARANTSEV	21	RVUE	$J/\psi \to \gamma\,(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$
seen	AAIJ	14BR	LHCB	$\overline{B}{}^0_s \to J/\psi\pi^+\pi^-$
seen	ABLIKIM	05	BES2	$J/\psi \to \phi\pi^+\pi^-$

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

VALUE	DOCUMENT ID		TECN	COMMENT
seen	SARANTSEV	21	RVUE	$J/\psi \to \gamma\,(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\eta\eta)/\Gamma_{\text{total}}$ Γ_3/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
seen	SARANTSEV	21	RVUE	$J/\psi \to \gamma\,(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

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

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
seen	7.2k	KHOLODENK..21		VES	29 $\pi^- p \to n\omega\phi$
seen		SARANTSEV	21	RVUE	$J/\psi \to \gamma(\pi\pi,\ K\overline{K},\ \eta\eta,\ \omega\phi)$

$\Gamma(\pi\pi)/\Gamma_{\text{total}} \times \Gamma(\omega\phi)/\Gamma_{\text{total}}$ $\Gamma_1/\Gamma \times \Gamma_4/\Gamma$

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4.8 ± 1.2	[1] DOROFEEV	24	VES	29 π^- Be $\to$ A$\omega\phi$

[1] Using one-pion exchange. Assigning this resonance to be $f_0(1710)$ instead gives $B(f_0 \to \pi\pi) \times B(f_0 \to \omega\phi) = (3.9 \pm 1.0) \times 10^{-3}$.

$f_0(1770)$ REFERENCES

DOROFEEV	24	EPJ A60 105	V.A. Dorofeev *et al.*	(VES Collab.)
KHOLODENK...	21	PAN 83 1602	M.S. Kholodenko	(VES Collab.)
SARANTSEV	21	PL B816 136227	A.V. Sarantsev *et al.*	(BONN, PNPI)
AAIJ	14BR	PR D89 092006	R. Aaij *et al.*	(LHCb Collab.)
ABLIKIM	13J	PR D87 032008	M. Ablikim *et al.*	(BESIII Collab.)
LIU	09	PR D79 071102	C. Liu *et al.*	(BELLE Collab.)
ABLIKIM	06J	PRL 96 162002	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05	PL B607 243	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05Q	PR D72 092002	M. Ablikim *et al.*	(BES Collab.)