

$f_0(1770)$

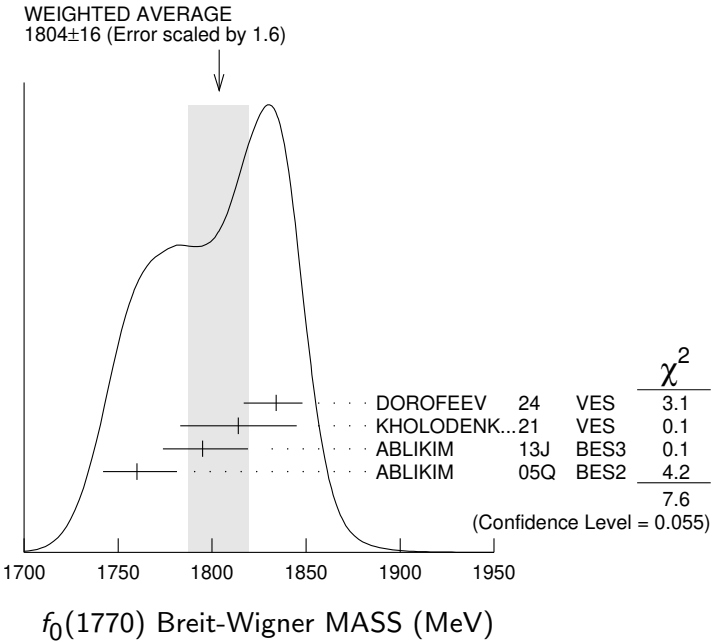
$I^G(J^{PC}) = 0^+(0^{++})$

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±14 ⁺² ₋₁₀		DOROFEEV 24	VES	29 π ⁻ Be → Aωφ
1814±31	7.2k	¹ KHOLODENK..21	VES	29 π ⁻ p → nωφ
1795±7 ⁺²³ ₋₂₀		ABLIKIM 13J	BES3	J/ψ → γωφ
1760±15 ⁺¹⁵ ₋₁₀		ABLIKIM 05Q	BES2	ψ(2S) → γπ ⁺ π ⁻ K ⁺ K ⁻
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
1765±15		SARANTSEV 21	RVUE	J/ψ → γ (ππ, K $\overline{K}$, ηη, ωφ)
1814±18		^{2,3} AAIJ 14BR	LHCB	$\overline{B}_s^0$ → J/ψπ ⁺ π ⁻
1812 ⁺¹⁹ ₋₂₆ ±18		⁴ ABLIKIM 06J	BES2	J/ψ → γωφ
1790 ⁺⁴⁰ ₋₃₀		ABLIKIM 05	BES2	J/ψ → φπ ⁺ π ⁻

¹ From partial wave analysis of ωφ invariant mass including 0⁺⁺, 2⁺⁺, and 0⁻⁺ resonances.
² Second solution: 1800 ± 22 MeV. The fit favors f₀(1770) to f₀(1710).
³ Statistical error only.
⁴ Not seen by LIU 09 in B[±] → K[±]ωφ.



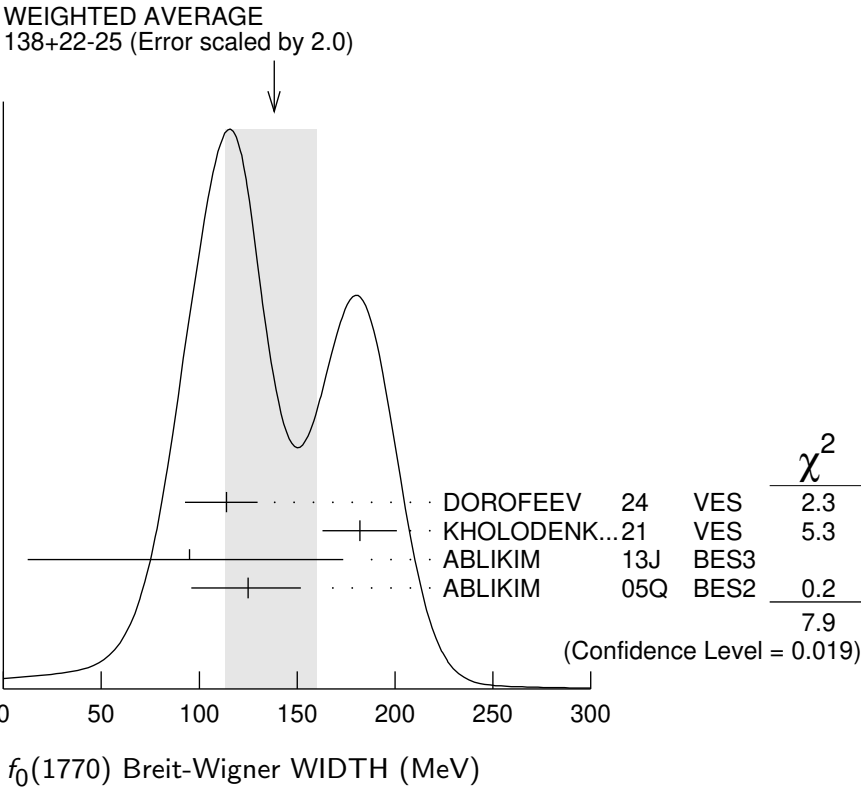
$f_0(1770)$ Breit-Wigner WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
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138^{+22}_{-25} OUR AVERAGE Error includes scale factor of 2.0. See the ideogram below.

$114 \pm 15^{+5}_{-15}$		DOROFEEV	24	VES	$29 \pi^- \text{Be} \rightarrow A \omega \phi$
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	$J/\psi \rightarrow \gamma (\pi \pi, K \bar{K}, \eta \eta, \omega \phi)$
328 ± 34	^{2,3} AAIJ	14BR	LHCB		$\bar{B}_s^0 \rightarrow J/\psi \pi^+ \pi^-$
$105 \pm 20 \pm 28$	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 ± 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 $K\bar{K}$	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	$J/\psi \rightarrow \gamma (\pi\pi, K\bar{K}, \eta\eta, \omega\phi)$	
seen	AAIJ 14BR	LHCB	$\bar{B}_s^0 \rightarrow J/\psi \pi^+ \pi^-$	
seen	ABLIKIM 05	BES2	$J/\psi \rightarrow \phi \pi^+ \pi^-$	
$\Gamma(K\bar{K})/\Gamma_{\text{total}}$				Γ_2/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
seen	SARANTSEV 21	RVUE	$J/\psi \rightarrow \gamma (\pi\pi, K\bar{K}, \eta\eta, \omega\phi)$	
$\Gamma(\eta\eta)/\Gamma_{\text{total}}$				Γ_3/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
seen	SARANTSEV 21	RVUE	$J/\psi \rightarrow \gamma (\pi\pi, K\bar{K}, \eta\eta, \omega\phi)$	
$\Gamma(\omega\phi)/\Gamma_{\text{total}}$				Γ_4/Γ
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
seen	7.2k	KHOLODENK..21	VES	$29 \pi^- p \rightarrow n \omega \phi$
seen		SARANTSEV 21	RVUE	$J/\psi \rightarrow \gamma (\pi\pi, K\bar{K}, \eta\eta, \omega\phi)$
$\Gamma(\pi\pi)/\Gamma_{\text{total}} \times \Gamma(\omega\phi)/\Gamma_{\text{total}}$				$\Gamma_1/\Gamma \times \Gamma_4/\Gamma$
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	$29 \pi^- \text{Be} \rightarrow A \omega \phi$	
¹ Using one-pion exchange. Assigning this resonance to be $f_0(1710)$ instead gives $B(f_0 \rightarrow \pi\pi) \times B(f_0 \rightarrow \omega\phi) = (3.9 \pm 1.0) \times 10^{-3}$.				

$f_0(1770)$ REFERENCES

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