$\omega(2220)$

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

OMITTED FROM SUMMARY TABLE

$\omega(2220)$ MASS

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
2188±21 OUR AVERAGE	Error includes scale factor of 1.2.			
2153±30±31	[1] ABLIKIM	24AJ	BES3	$e^+e^- \to \omega\eta'$
2232±19±27	[2] ABLIKIM	23G	BES3	2.0–3.1 $e^+e^- \to \omega\pi\pi$
2176±24± 3	[3] ABLIKIM	21A	BES3	$e^+e^- \to \omega\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
2250±25±27	[4] ABLIKIM	23G	BES3	2.0–3.1 $e^+e^- \to \omega\pi^+\pi^-$
2222± 7± 2	[5] ABLIKIM	22I	BES3	2.0–3.8 $e^+e^- \to \omega\pi^0\pi^0$
2205±30	[6] ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta, \omega\pi^0\pi^0$

[1] From a fit to the e^+e^- cross section between 2.00 and 3.08 GeV with a sum of Breit-Wigner amplitude and a non-resonant contribution.
[2] From a fit to $\omega\pi^+\pi^-$ and $\omega\pi^0\pi^0$ with a Breit-Wigner resonance interfering with the continuum. Supersedes ABLIKIM 22I.
[3] From a fit to the cross section between 2.00 and 3.08 GeV with a coherent sum of Breit-Wigner amplitudes, including contributions from $\omega(1420)$ and $\omega(1650)/\phi(1680)$.
[4] From a fit to $\omega\pi^+\pi^-$ with a Breit-Wigner resonance interfering with the continuum.
[5] From the fit to the cross section by the coherent sum of resonant component parametrized by a modified Breit-Wigner amplitude and a phase-space contribution for the continuum.
[6] From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.

$\omega(2220)$ WIDTH

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
105±34 OUR AVERAGE				
167±77± 7	[1] ABLIKIM	24AJ	BES3	$e^+e^- \to \omega\eta'$
93±53±20	[2] ABLIKIM	23G	BES3	2.0–3.1 $e^+e^- \to \omega\pi\pi$
89±50± 5	[3] ABLIKIM	21A	BES3	$e^+e^- \to \omega\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
125±43±15	[4] ABLIKIM	23G	BES3	2.0–3.1 $e^+e^- \to \omega\pi^+\pi^-$
59±30± 6	[5] ABLIKIM	22I	BES3	2.0–3.8 $e^+e^- \to \omega\pi^0\pi^0$
350±90	[6] ANISOVICH	02B	SPEC	0.6–1.9 $p\overline{p} \to \omega\eta, \omega\pi^0\pi^0$

[1] From a fit to the e^+e^- cross section between 2.00 and 3.08 GeV with a sum of Breit-Wigner amplitude and a non-resonant contribution.
[2] From a fit to $\omega\pi^+\pi^-$ and $\omega\pi^0\pi^0$ with a Breit-Wigner resonance interfering with the continuum. Supersedes ABLIKIM 22I.
[3] From a fit to the cross section between 2.00 and 3.08 GeV with a coherent sum of Breit-Wigner amplitudes, including contributions from $\omega(1420)$ and $\omega(1650)/\phi(1680)$.
[4] From a fit to $\omega\pi^+\pi^-$ with a Breit-Wigner resonance interfering with the continuum.
[5] From the fit to the cross section by the coherent sum of resonant component parametrized by a modified Breit-Wigner amplitude and a phase-space contribution for the continuum.
[6] From the combined analysis of ANISOVICH 00D, ANISOVICH 01C, and ANISOVICH 02B.

$\omega(2220)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\omega\pi\pi$	seen
Γ_2	$\omega\pi^+\pi^-$	seen
Γ_3	$\omega\pi^0\pi^0$	seen
Γ_4	$\omega\eta$	seen
Γ_5	$\omega\eta'$	seen
Γ_6	e^+e^-	seen

$\omega(2220)$ $\Gamma(i)\Gamma(e^+e^-)/\Gamma(\text{total})$

$\Gamma(\omega\pi^0\pi^0) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_3\Gamma_6/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.3\pm0.1\pm0.1$	[1] ABLIKIM	22I	BES3	2.0–3.8 $e^+e^- \to \omega\pi^0\pi^0$

[1] Superseded by ABLIKIM 23G.

$\Gamma(\omega\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_2\Gamma_6/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.9\pm0.4\pm0.4$	[1] ABLIKIM	23G	BES3	2.0–3.1 $e^+e^- \to \omega\pi^+\pi^-$

[1] From a fit to $\omega\pi^+\pi^-$ with a Breit-Wigner resonance interfering with the continuum. Solution with constructive interference: 52.9 ± 17.0 ± 13.1 eV.

$\Gamma(\omega\pi\pi) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_1\Gamma_6/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
$0.9\pm0.5\pm0.2$	[1] ABLIKIM	23G	BES3	2.0–3.1 $e^+e^- \to \omega\pi\pi$

[1] From a fit to $\omega\pi^+\pi^-$ and $\omega\pi^0\pi^0$ with a Breit-Wigner resonance interfering with the continuum. Solution with constructive interference: 61.1 ± 32.1 ± 15.4 eV. Supersedes ABLIKIM 22I.

$\Gamma(\omega\eta) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_4\Gamma_6/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
$0.43\pm0.15\pm0.04$	[1] ABLIKIM	21A	BES3	$e^+e^- \to \omega\eta$

[1] For constructive interference with $\omega(1420)$ and $\omega(1650)/\phi(1680)$. For destructive interference: 1.25 ± 0.48 ± 0.18 eV.

$\Gamma(\omega\eta') \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_5\Gamma_6/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
4.2 ±1.5 OUR AVERAGE				
$5.72\pm1.68\pm1.5$	[1] ABLIKIM	24AJ	BES3	$e^+e^- \to \omega\eta'$
$2.99\pm1.68\pm1.2$	[2] ABLIKIM	24AJ	BES3	$e^+e^- \to \omega\eta'$

[1] Solution 1 of the two solutions.
[2] Solution 2 of the two solutions.

$\omega(2220)$ REFERENCES

ABLIKIM	24AJ	JHEP 2407 093	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	23G	JHEP 2301 111	M. Ablikim *et al.*	(BESIII Collab.)
Also		JHEP 2303 093 (errat.)	M. Ablikim, et. al.	(BESIII Collab.)
ABLIKIM	22I	PR D105 032005	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	21A	PL B813 136059	M. Ablikim *et al.*	(BESIII Collab.)
ANISOVICH	02B	PL B542 19	A.V. Anisovich *et al.*	
ANISOVICH	01C	PL B507 23	A.V. Anisovich *et al.*	
ANISOVICH	00D	PL B476 15	A.V. Anisovich *et al.*	