

# $\omega_3(1670)$

$$I^G(J^{PC}) = 0^-(3^{--})$$

## $\omega_3(1670)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>1667 ± 4 OUR AVERAGE</b>				
1665.3 ± 5.2 ± 4.5	23400	AMELIN	96 VES	36 $\pi^- p \rightarrow \pi^+ \pi^- \pi^0 n$
1685 ± 20	60	BAUBILLIER	79 HBC	8.2 $K^- p$ backward
1673 ± 12	430	<sup>1,2</sup> BALTAY	78E HBC	15 $\pi^+ p \rightarrow \Delta 3\pi$
1650 ± 12		CORDEN	78B OMEG	8-12 $\pi^- p \rightarrow N 3\pi$
1669 ± 11	600	<sup>2</sup> WAGNER	75 HBC	7 $\pi^+ p \rightarrow \Delta^{++} 3\pi$
1678 ± 14	500	DIAZ	74 DBC	6 $\pi^+ n \rightarrow p 3\pi^0$
1660 ± 13	200	DIAZ	74 DBC	6 $\pi^+ n \rightarrow p \omega \pi^0 \pi^0$
1679 ± 17	200	MATTHEWS	71D DBC	7.0 $\pi^+ n \rightarrow p 3\pi^0$
1670 ± 20		KENYON	69 DBC	8 $\pi^+ n \rightarrow p 3\pi^0$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
~ 1700	110	<sup>1</sup> CERRADA	77B HBC	4.2 $K^- p \rightarrow \Lambda 3\pi$
1695 ± 20		BARNES	69B HBC	4.6 $K^- p \rightarrow \omega 2\pi X$
1636 ± 20		ARMENISE	68B DBC	5.1 $\pi^+ n \rightarrow p 3\pi^0$
<sup>1</sup> Phase rotation seen for $J^P = 3^- \rho\pi$ wave.				
<sup>2</sup> From a fit to $I(J^P) = 0(3^-) \rho\pi$ partial wave.				

## $\omega_3(1670)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>168 ± 10 OUR AVERAGE</b>				
149 ± 19 ± 7	23400	AMELIN	96 VES	36 $\pi^- p \rightarrow \pi^+ \pi^- \pi^0 n$
160 ± 80	60	<sup>3</sup> BAUBILLIER	79 HBC	8.2 $K^- p$ backward
173 ± 16	430	<sup>4,5</sup> BALTAY	78E HBC	15 $\pi^+ p \rightarrow \Delta 3\pi$
253 ± 39		CORDEN	78B OMEG	8-12 $\pi^- p \rightarrow N 3\pi$
173 ± 28	600	<sup>3,5</sup> WAGNER	75 HBC	7 $\pi^+ p \rightarrow \Delta^{++} 3\pi$
167 ± 40	500	DIAZ	74 DBC	6 $\pi^+ n \rightarrow p 3\pi^0$
122 ± 39	200	DIAZ	74 DBC	6 $\pi^+ n \rightarrow p \omega \pi^0 \pi^0$
155 ± 40	200	<sup>3</sup> MATTHEWS	71D DBC	7.0 $\pi^+ n \rightarrow p 3\pi^0$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
90 ± 20		BARNES	69B HBC	4.6 $K^- p \rightarrow \omega 2\pi$
100 ± 40		KENYON	69 DBC	8 $\pi^+ n \rightarrow p 3\pi^0$
112 ± 60		ARMENISE	68B DBC	5.1 $\pi^+ n \rightarrow p 3\pi^0$
<sup>3</sup> Width errors enlarged by us to $4\Gamma/\sqrt{N}$ ; see the note with the $K^*(892)$ mass.				
<sup>4</sup> Phase rotation seen for $J^P = 3^- \rho\pi$ wave.				
<sup>5</sup> From a fit to $I(J^P) = 0(3^-) \rho\pi$ partial wave.				

## $\omega_3(1670)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $\rho\pi$	seen
$\Gamma_2$ $\omega\pi\pi$	seen
$\Gamma_3$ $b_1(1235)\pi$	possibly seen

## $\omega_3(1670)$ BRANCHING RATIOS

### $\Gamma(\omega\pi\pi)/\Gamma(\rho\pi)$ $\Gamma_2/\Gamma_1$

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
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• • • We do not use the following data for averages, fits, limits, etc. • • •

0.71±0.27	100	DIAZ	74 DBC	6 $\pi^+ n \rightarrow p5\pi^0$
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### $\Gamma(b_1(1235)\pi)/\Gamma(\rho\pi)$ $\Gamma_3/\Gamma_1$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
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possibly seen	DIAZ	74 DBC	6 $\pi^+ n \rightarrow p5\pi^0$
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### $\Gamma(b_1(1235)\pi)/\Gamma(\omega\pi\pi)$ $\Gamma_3/\Gamma_2$

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
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• • • We do not use the following data for averages, fits, limits, etc. • • •

>0.75	68	BAUBILLIER	79 HBC	8.2 $K^- p$ backward
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## $\omega_3(1670)$ REFERENCES

AMELIN	96	ZPHY C70 71	D.V. Amelin <i>et al.</i>	(SERP, TBIL)
BAUBILLIER	79	PL 89B 131	M. Baubillier <i>et al.</i>	(BIRM, CERN, GLAS+)
BALTAY	78E	PRL 40 87	C. Baltay, C.V. Cautis, M. Kalelkar	(COLU) JP
CORDEN	78B	NP B138 235	M.J. Corden <i>et al.</i>	(BIRM, RHEL, TELA+)
CERRADA	77B	NP B126 241	M. Cerrada <i>et al.</i>	(AMST, CERN, NIJM+) JP
WAGNER	75	PL 58B 201	F. Wagner, M. Tabak, D.M. Chew	(LBL) JP
DIAZ	74	PRL 32 260	J. Diaz <i>et al.</i>	(CASE, CMU)
MATTHEWS	71D	PR D3 2561	J.A.J. Matthews <i>et al.</i>	(TNTO, WISC)
BARNES	69B	PRL 23 142	V.E. Barnes <i>et al.</i>	(BNL)
KENYON	69	PRL 23 146	I.R. Kenyon <i>et al.</i>	(BNL, UCND, ORNL)
ARMENISE	68B	PL 26B 336	N. Armenise <i>et al.</i>	(BARI, BGNA, FIRZ+)

## OTHER RELATED PAPERS

MATTHEWS	71	LNC 1 361	J.A.J. Matthews <i>et al.</i>	(TNTO, WISC)
ARMENISE	70	LNC 4 199	N. Armenise <i>et al.</i>	(BARI, BGNA, FIRZ)