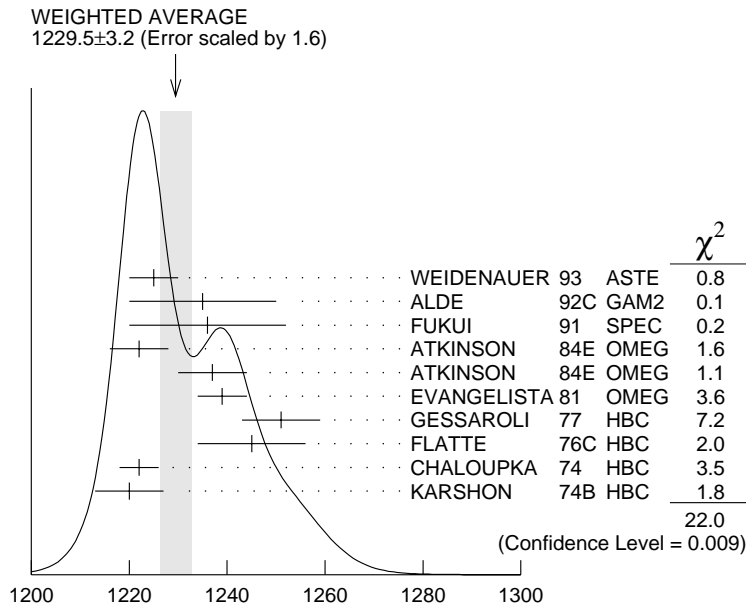


$b_1(1235)$

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

### $b_1(1235)$ MASS

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>	
<b>1229.5 ± 3.2 OUR AVERAGE</b>		Error includes scale factor of 1.6. See the ideogram below.				
1225 ± 5		WEIDENAUER 93	ASTE		$\bar{p}p \rightarrow$ $2\pi^+ 2\pi^- \pi^0$	
1235 ± 15		ALDE	92C	GAM2	38,100 $\pi^- p \rightarrow$ $\omega \pi^0 n$	
1236 ± 16		FUKUI	91	SPEC	8.95 $\pi^- p \rightarrow$ $\omega \pi^0 n$	
1222 ± 6		ATKINSON	84E	OMEG ±	25-55 $\gamma p \rightarrow$ $\omega \pi X$	
1237 ± 7		ATKINSON	84E	OMEG 0	25-55 $\gamma p \rightarrow$ $\omega \pi X$	
1239 ± 5		EVANGELISTA 81	OMEG	-	12 $\pi^- p \rightarrow \omega \pi p$	
1251 ± 8	450	GESSAROLI 77	HBC	-	11 $\pi^- p \rightarrow$ $\pi^- \omega p$	
1245 ± 11	890	FLATTE	76C	HBC	-	4.2 $K^- p \rightarrow$ $\pi^- \omega \Sigma^+$
1222 ± 4	1400	CHALOUPIKA 74	HBC	-	3.9 $\pi^- p$	
1220 ± 7	600	KARSHON	74B	HBC	+	4.9 $\pi^+ p$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●						
1190 ± 10		AUGUSTIN	89	DM2	±	$e^+ e^- \rightarrow 5\pi$
1213 ± 5		ATKINSON	84C	OMEG 0		20-70 $\gamma p$
1271 ± 11		COLLICK	84	SPEC	+	200 $\pi^+ Z \rightarrow$ $Z \pi \omega$



$b_1(1235)$  mass (MeV)

### $b_1(1235)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
<b>142± 9 OUR AVERAGE</b>	Error includes scale factor of 1.2.				
113±12		WEIDENAUER 93	ASTE		$\bar{p}p \rightarrow 2\pi^+ 2\pi^- \pi^0$
160±30		ALDE 92C	GAM2		38,100 $\pi^- p \rightarrow \omega \pi^0 n$
151±31		FUKUI 91	SPEC		8.95 $\pi^- p \rightarrow \omega \pi^0 n$
170±15		EVANGELISTA 81	OMEG	-	12 $\pi^- p \rightarrow \omega \pi p$
170±50	225	BALTAY 78B	HBC	+	15 $\pi^+ p \rightarrow p 4\pi$
155±32	450	GESSAROLI 77	HBC	-	11 $\pi^- p \rightarrow \pi^- \omega p$
182±45	890	FLATTE 76C	HBC	-	4.2 $K^- p \rightarrow \pi^- \omega \Sigma^+$
135±20	1400	CHALOUPKA 74	HBC	-	3.9 $\pi^- p$
156±22	600	KARSHON 74B	HBC	+	4.9 $\pi^+ p$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
210±19		AUGUSTIN 89	DM2	±	$e^+ e^- \rightarrow 5\pi$
231±14		ATKINSON 84C	OMEG	0	20-70 $\gamma p$
232±29		COLLICK 84	SPEC	+	200 $\pi^+ Z \rightarrow Z \pi \omega$

**$b_1(1235)$  DECAY MODES**

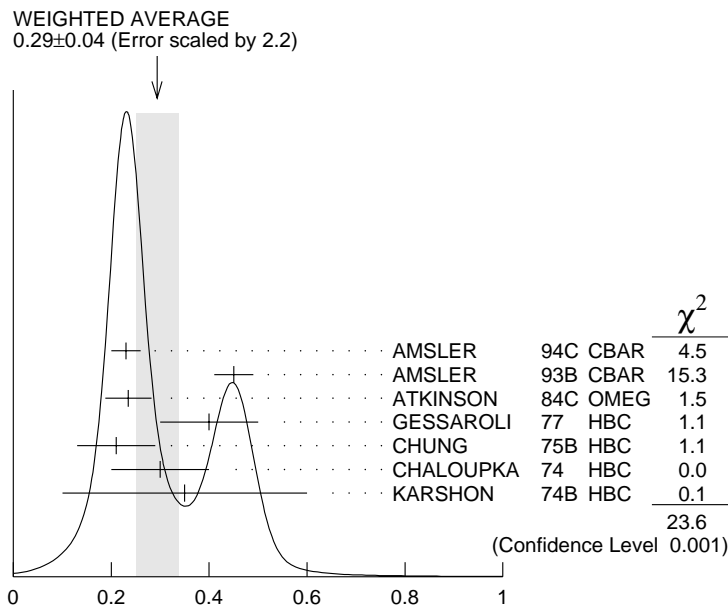
Mode	Fraction ( $\Gamma_i/\Gamma$ )	Confidence level
$\Gamma_1$ $\omega\pi$ [D/S amplitude ratio = $0.29 \pm 0.04$ ]	dominant	
$\Gamma_2$ $\pi^\pm\gamma$	$(1.6 \pm 0.4) \times 10^{-3}$	
$\Gamma_3$ $\eta\rho$	seen	
$\Gamma_4$ $\pi^+\pi^+\pi^-\pi^0$	< 50 %	84%
$\Gamma_5$ $(K\bar{K})^\pm\pi^0$	< 8 %	90%
$\Gamma_6$ $K_S^0 K_L^0 \pi^\pm$	< 6 %	90%
$\Gamma_7$ $K_S^0 K_S^0 \pi^\pm$	< 2 %	90%
$\Gamma_8$ $\phi\pi$	< 1.5 %	84%

 **$b_1(1235)$  PARTIAL WIDTHS**

$\Gamma(\pi^\pm\gamma)$						$\Gamma_2$
VALUE (keV)	DOCUMENT ID	TECN	CHG	COMMENT		
<b><math>230 \pm 60</math></b>	COLLICK	84	SPEC	+	200 $\pi^+ Z \rightarrow Z\pi\omega$	

 **$b_1(1235)$  D-wave/S-wave AMPLITUDE RATIO IN DECAY OF  $b_1(1235) \rightarrow \omega\pi$** 

VALUE	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
<b><math>0.29 \pm 0.04</math></b>	<b>OUR AVERAGE</b>	Error includes scale factor of 2.2. See the ideogram below.			
$0.23 \pm 0.03$		AMSLER	94C	CBAR	$0.0 \bar{p}p \rightarrow \omega\eta\pi^0$
$0.45 \pm 0.04$		AMSLER	93B	CBAR	$0.0 \bar{p}p \rightarrow \omega\pi^0\pi^0$
$0.235 \pm 0.047$		ATKINSON	84C	OMEG	20-70 $\gamma p$
$0.4 \begin{smallmatrix} +0.1 \\ -0.1 \end{smallmatrix}$		GESSAROLI	77	HBC	- 11 $\pi^- p \rightarrow \pi^- \omega p$
$0.21 \pm 0.08$		CHUNG	75B	HBC	+ 7.1 $\pi^+ p$
$0.3 \pm 0.1$		CHALOUPIKA	74	HBC	- 3.9-7.5 $\pi^- p$
$0.35 \pm 0.25$	600	KARSHON	74B	HBC	+ 4.9 $\pi^+ p$



$b_1(1235)$  *D*-wave/*S*-wave amplitude ratio in decay of  $b_1(1235) \rightarrow \omega\pi$

### $b_1(1235)$ BRANCHING RATIOS

$\Gamma(\eta\rho)/\Gamma(\omega\pi)$						$\Gamma_3/\Gamma_1$
VALUE		DOCUMENT ID	TECN	CHG	COMMENT	
<b>&lt;0.10</b>		ATKINSON	84D OMEG		20-70 $\gamma p$	
$\Gamma(\pi^+\pi^+\pi^-\pi^0)/\Gamma(\omega\pi)$						$\Gamma_4/\Gamma_1$
VALUE		DOCUMENT ID	TECN	CHG	COMMENT	
<b>&lt;0.5</b>		ABOLINS	63 HBC	+	3.5 $\pi^+ p$	
$\Gamma((K\bar{K})^\pm\pi^0)/\Gamma(\omega\pi)$						$\Gamma_5/\Gamma_1$
VALUE	CL%	DOCUMENT ID	TECN	CHG	COMMENT	
<b>&lt;0.08</b>	90	BALTAY	67 HBC	$\pm$	0.0 $\bar{p}p$	
$\Gamma(K_S^0 K_L^0 \pi^\pm)/\Gamma(\omega\pi)$						$\Gamma_6/\Gamma_1$
VALUE	CL%	DOCUMENT ID	TECN	CHG	COMMENT	
<b>&lt;0.06</b>	90	BALTAY	67 HBC	$\pm$	0.0 $\bar{p}p$	
$\Gamma(K_S^0 K_S^0 \pi^\pm)/\Gamma(\omega\pi)$						$\Gamma_7/\Gamma_1$
VALUE	CL%	DOCUMENT ID	TECN	CHG	COMMENT	
<b>&lt;0.02</b>	90	BALTAY	67 HBC	$\pm$	0.0 $\bar{p}p$	

$\Gamma(\phi\pi)/\Gamma(\omega\pi)$						$\Gamma_8/\Gamma_1$
VALUE	CL%	DOCUMENT ID	TECN	CHG	COMMENT	
<0.004	95	VIKTOROV	96	SPEC	0	$32.5 \pi^- p \rightarrow K^+ K^- \pi^0 n$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●						
<0.04	95	BIZZARRI	69	HBC	±	$0.0 \bar{p} p$
<0.015		DAHL	67	HBC		$1.6-4.2 \pi^- p$

### $b_1(1235)$ REFERENCES

VIKTOROV	96	PAN 59 1184	+Golovkin+	(SERP)
		Translated from YAF 59 1239.		
AMSLER	94C	PL B327 425	+Armstrong, Ravndal+	(Crystal Barrel Collab.)
AMSLER	93B	PL B311 362	+Armstrong, v.Dombrowski+	(Crystal Barrel Collab.)
WEIDENAUER	93	ZPHY C59 387	+Duch+	(ASTERIX Collab.)
ALDE	92C	ZPHY C54 553	+Bencheikh, Binon+	(BELG, SERP, KEK, LANL, LAPP)
FUKUI	91	PL B257 241	+Horikawa+	(SUGI, NAGO, KEK, KYOT, MIYA)
AUGUSTIN	89	NP B320 1	+Cosme	(DM2 Collab.)
ATKINSON	84C	NP B243 1	+	(BONN, CERN, GLAS, LANC, MCHS, CURIN+) JP
ATKINSON	84D	NP B242 269	+	(BONN, CERN, GLAS, LANC, MCHS, CURIN+)
ATKINSON	84E	PL 138B 459	+	(BONN, CERN, GLAS, LANC, MCHS, CURIN+)
COLLICK	84	PRL 53 2374	+Heppelmann, Berg+	(MINN, ROCH, FNAL)
EVANGELISTA	81	NP B178 197	+	(BARI, BONN, CERN, DARE, LIVP+)
BALTAY	78B	PR D17 62	+Cautis, Cohen, Csorna+	(COLU, BING)
GESSAROLI	77	NP B126 382	+	(BGNA, FIRZ, GENO, MILA, OXF, PAVI) JP
FLATTE	76C	PL 64B 225	+Gay, Blokzijl, Metzger+	(CERN, AMST, NIJM, OXF) JP
CHUNG	75B	PR D11 2426	+Protopopescu, Lynch, Flatte+	(BNL, LBL, UCSC) JP
CHALOUPKA	74	PL 51B 407	+Ferrando, Losty, Montanet	(CERN) JP
KARSHON	74B	PR D10 3608	+Mikenberg, Eisenberg, Pitluck, Ronat+	(REHO) JP
BIZZARRI	69	NP B14 169	+Foster, Gavillet, Montanet+	(CERN, CDEF)
BALTAY	67	PRL 18 93	+Franzini, Severiens, Yeh, Zanello	(COLU)
DAHL	67	PR 163 1377	+Hardy, Hess, Kirz, Miller	(LRL)
ABOLINS	63	PRL 11 381	+Lander, Mehlhop, Nguyen, Yager	(UCSD)

### OTHER RELATED PAPERS

GOLOVKIN	97	ZPHY A359 4335	S.V. Golovkin, Kozhevnikov+	(SERP, ITEP)
BRAU	88	PR D37 2379	+Franek+	(SLAC Hybrid Facility Photon Collab.) JP
ATKINSON	84C	NP B243 1	+	(BONN, CERN, GLAS, LANC, MCHS, CURIN+) JP
GOLDHABER	65	PRL 15 118	+Goldhaber, Kadyk, Shen	(LRL)
CARMONY	64	PRL 12 254	+Lander, Rindfleisch, Xuong, Yager	(UCB) JP
BONDAR	63B	PL 5 209	+Dodd+	(AACH, BIRM, HAMB, LOIC, MPIM)