$\rho_3(1690)$

$I^G(J^{PC}) = 1^+(3^{--})$

$\rho_3(1690)$ MASS

VALUE (MeV) — *DOCUMENT ID*

1691 ±5 OUR ESTIMATE This is only an educated guess; the error given is larger than the error on the average of the published values.
1688.8±2.1 OUR AVERAGE Includes data from the 5 datablocks that follow this one.

2π MODE

The data in this block is included in the average printed for a previous datablock.

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1686± 4 OUR AVERAGE						
1677±14		EVANGELISTA	81	OMEG	−	12 $\pi^- p \to 2\pi p$
1679±11	476	BALTAY	78B	HBC	0	15 $\pi^+ p \to \pi^+\pi^- n$
1678±12	175	[1] ANTIPOV	77	CIBS	0	25 $\pi^- p \to p 3\pi$
1690± 7	600	[1] ENGLER	74	DBC	0	6 $\pi^+ n \to \pi^+\pi^- p$
1693± 8		[2] GRAYER	74	ASPK	0	17 $\pi^- p \to \pi^+\pi^- n$
1678±12		MATTHEWS	71C	DBC	0	7 $\pi^+ N$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
1734±10		[3] CORDEN	79	OMEG		12–15 $\pi^- p \to n 2\pi$
1692±12		[2,4] ESTABROOKS	75	RVUE		17 $\pi^- p \to \pi^+\pi^- n$
1737±23		ARMENISE	70	DBC	0	9 $\pi^+ N$
1650±35	122	BARTSCH	70B	HBC	+	8 $\pi^+ p \to N 2\pi$
1687±21		STUNTEBECK	70	HDBC	0	8 $\pi^- p$, 5.4 $\pi^+ d$
1683±13		ARMENISE	68	DBC	0	5.1 $\pi^+ d$
1670±30		GOLDBERG	65	HBC	0	6 $\pi^+ d$, 8 $\pi^- p$

[1] Mass errors enlarged by us to $\Gamma/\sqrt{N}$; see the note with the $K^*(892)$ mass.
[2] Uses same data as HYAMS 75.
[3] From a phase shift solution containing a $f_2'(1525)$ width two times larger than the $K\overline{K}$ result.
[4] From phase-shift analysis. Error takes account of spread of different phase-shift solutions.

$K\overline{K}$ AND $K\overline{K}\pi$ MODES

The data in this block is included in the average printed for a previous datablock.

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1696± 4 OUR AVERAGE						
1699± 5		ALPER	80	CNTR	0	62 $\pi^- p \to K^+ K^- n$
1698±12	6k	[5,6] MARTIN	78D	SPEC		10 $\pi p \to K^0_S K^- p$
1692± 6		BLUM	75	ASPK	0	18.4 $\pi^- p \to n K^+ K^-$
1690±16		ADERHOLZ	69	HBC	+	8 $\pi^+ p \to K\overline{K}\pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •						

1694 ± 8		[7] COSTA...	80	OMEG		$10\ \pi^- p \to K^+ K^- n$

[5] From a fit to $J^P = 3^-$ partial wave.
[6] Systematic error on mass scale subtracted.
[7] They cannot distinguish between $\rho_3(1690)$ and $\omega_3(1670)$.

$(4\pi)^{\pm}$ MODE

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
The data in this block is included in the average printed for a previous datablock.						
1686± 5 OUR AVERAGE	Error includes scale factor of 1.1.					
1694 ± 6		[8] EVANGELISTA	81	OMEG	−	$12\ \pi^- p \to p 4\pi$
1665 ± 15	177	BALTAY	78B	HBC	+	$15\ \pi^+ p \to p 4\pi$
1670 ± 10		THOMPSON	74	HBC	+	$13\ \pi^+ p$
1687 ± 20		CASON	73	HBC	−	$8,18.5\ \pi^- p$
1685 ± 14		[9] CASON	73	HBC	−	$8,18.5\ \pi^- p$
1680 ± 40	144	BARTSCH	70B	HBC	+	$8\ \pi^+ p \to N 4\pi$
1689 ± 20	102	[9] BARTSCH	70B	HBC	+	$8\ \pi^+ p \to N 2\rho$
1705 ± 21		CASO	70	HBC	−	$11.2\ \pi^- p \to n \rho 2\pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
1718 ± 10		[10] EVANGELISTA	81	OMEG	−	$12\ \pi^- p \to p 4\pi$
1673 ± 9		[11] EVANGELISTA	81	OMEG	−	$12\ \pi^- p \to p 4\pi$
1733 ± 9	66	[9] KLIGER	74	HBC	−	$4.5\ \pi^- p \to p 4\pi$
1630 ± 15		HOLMES	72	HBC	+	10–12 $K^+ p$
1720 ± 15		BALTAY	68	HBC	+	7, 8.5 $\pi^+ p$

[8] From $\rho^- \rho^0$ mode, not independent of the other two EVANGELISTA 81 entries.
[9] From $\rho^{\pm} \rho^0$ mode.
[10] From $a_2(1320)^- \pi^0$ mode, not independent of the other two EVANGELISTA 81 entries.
[11] From $a_2(1320)^0 \pi^-$ mode, not independent of the other two EVANGELISTA 81 entries.

$\omega\pi$ MODE

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
The data in this block is included in the average printed for a previous datablock.					
1681± 7 OUR AVERAGE					
1670 ± 25	[12] ALDE	95	GAM2		$38\ \pi^- p \to \omega \pi^0 n$
1690 ± 15	EVANGELISTA	81	OMEG	−	$12\ \pi^- p \to \omega \pi p$
1666 ± 14	GESSAROLI	77	HBC		$11\ \pi^- p \to \omega \pi p$
1686 ± 9	THOMPSON	74	HBC	+	$13\ \pi^+ p$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1654 ± 24	BARNHAM	70	HBC	+	$10\ K^+ p \to \omega \pi X$

[12] Supersedes ALDE 92C.

$\eta\pi^+\pi^-$ MODE

(For difficulties with MMS experiments, see the $a_2(1320)$ mini-review in the 1973 edition.)

VALUE (MeV)	DOCUMENT ID		TECN	CHG	COMMENT
The data in this block is included in the average printed for a previous datablock.					
1682±12 OUR AVERAGE					
1685±10±20	AMELIN	00	VES		37 $\pi^- p \to \eta\pi^+\pi^- n$
1680±15	FUKUI	88	SPEC	0	8.95 $\pi^- p \to \eta\pi^+\pi^- n$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1700±47	[13] ANDERSON	69	MMS	−	16 $\pi^- p$ backward
1632±15	[13,14] FOCACCI	66	MMS	−	7–12 $\pi^- p \to p$MM
1700±15	[13,14] FOCACCI	66	MMS	−	7–12 $\pi^- p \to p$MM
1748±15	[13,14] FOCACCI	66	MMS	−	7–12 $\pi^- p \to p$MM

[13] Seen in 2.5–3 GeV/c $\overline{p}p$. $2\pi^+2\pi^-$, with 0, 1, 2 $\pi^+\pi^-$ pairs in ρ band not seen by OREN 74 (2.3 GeV/c $\overline{p}p$) with more statistics. (Jan. 1976)

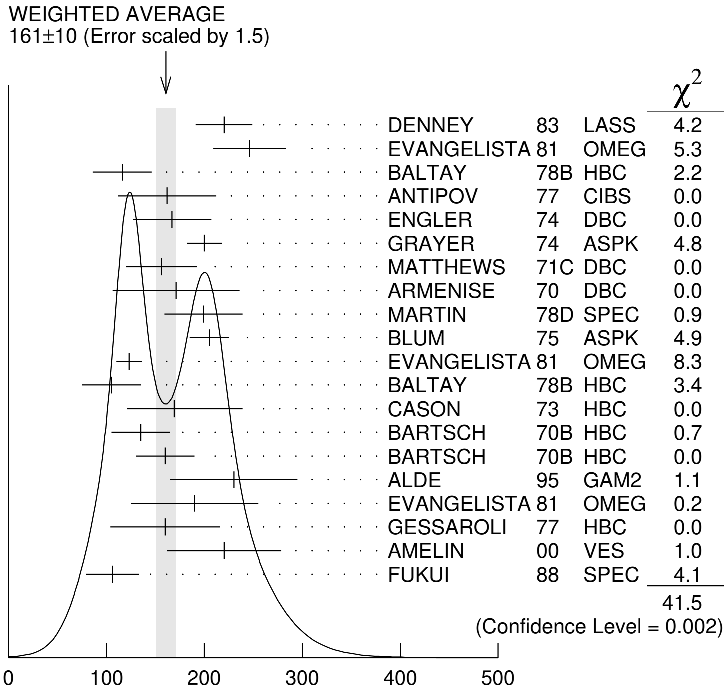
[14] Not seen by BOWEN 72.

$\rho_3(1690)$ WIDTH

2π, $K\overline{K}$, AND $K\overline{K}\pi$ MODES

VALUE (MeV)	*DOCUMENT ID*

161±10 OUR AVERAGE Includes data from the 5 datablocks that follow this one. Error includes scale factor of 1.5. See the ideogram below.



$\rho_3(1690)$ width, 2π, $K\overline{K}$, and $K\overline{K}\pi$ modes (MeV)

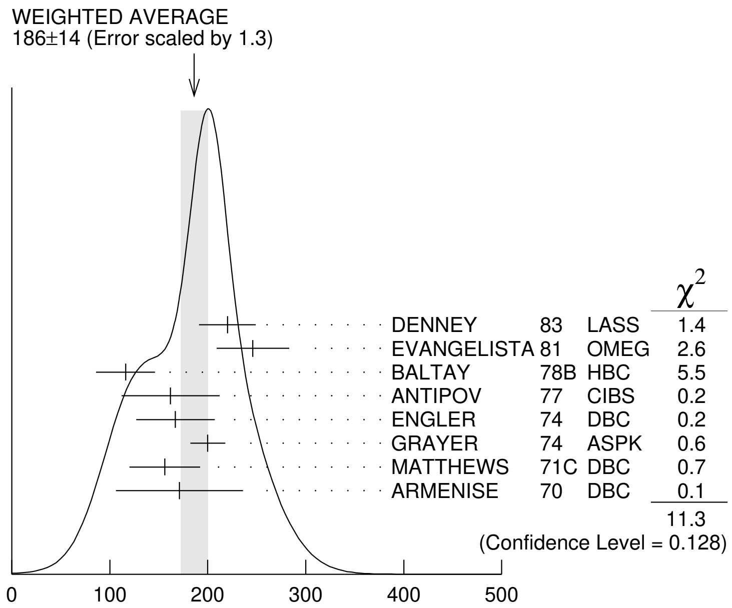
2π MODE

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
The data in this block is included in the average printed for a previous datablock.						
186±14 OUR AVERAGE	Error includes scale factor of 1.3. See the ideogram below.					
220±29		DENNEY	83	LASS		10 $\pi^+ N$
246±37		EVANGELISTA	81	OMEG	−	12 $\pi^- p \to 2\pi p$
116±30	476	BALTAY	78B	HBC	0	15 $\pi^+ p \to \pi^+\pi^- n$
162±50	175	[15] ANTIPOV	77	CIBS	0	25 $\pi^- p \to p 3\pi$
167±40	600	ENGLER	74	DBC	0	6 $\pi^+ n \to \pi^+\pi^- p$
200±18		[16] GRAYER	74	ASPK	0	17 $\pi^- p \to \pi^+\pi^- n$
156±36		MATTHEWS	71C	DBC	0	7 $\pi^+ N$
171±65		ARMENISE	70	DBC	0	9 $\pi^+ d$

• • • We do not use the following data for averages, fits, limits, etc. • • •

322±35		[17] CORDEN	79	OMEG		12–15 $\pi^- p \to n 2\pi$
240±30		[16,18] ESTABROOKS	75	RVUE		17 $\pi^- p \to \pi^+ \pi^- n$
180±30	122	BARTSCH	70B	HBC	+	8 $\pi^+ p \to N 2\pi$
267^{+72}_{-46}		STUNTEBECK	70	HDBC	0	8 $\pi^- p$, 5.4 $\pi^+ d$
188±49		ARMENISE	68	DBC	0	5.1 $\pi^+ d$
180±40		GOLDBERG	65	HBC	0	6 $\pi^+ d$, 8 $\pi^- p$

[15] Width errors enlarged by us to $4\Gamma/\sqrt{N}$; see the note with the $K^*(892)$ mass.
[16] Uses same data as HYAMS 75 and BECKER 79.
[17] From a phase shift solution containing a $f'_2(1525)$ width two times larger than the $K\overline{K}$ result.
[18] From phase-shift analysis. Error takes account of spread of different phase-shift solutions.



$\rho_3(1690)$ width, 2π mode (MeV)

$K\overline{K}$ AND $K\overline{K}\pi$ MODES

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
The data in this block is included in the average printed for a previous datablock.						
204±18 OUR AVERAGE						
199±40	6000	[19] MARTIN	78D	SPEC		10 $\pi p \to K^0_S K^- p$
205±20		BLUM	75	ASPK	0	18.4 $\pi^- p \to n K^+ K^-$

• • • We do not use the following data for averages, fits, limits, etc. • • •

219±4		ALPER	80	CNTR	0	62 $\pi^- p \rightarrow K^+ K^- n$
186±11		[20] COSTA...	80	OMEG		10 $\pi^- p \rightarrow K^+ K^- n$
112±60		ADERHOLZ	69	HBC	+	8 $\pi^+ p \rightarrow K \overline{K} \pi$

[19] From a fit to $J^P = 3^-$ partial wave.
[20] They cannot distinguish between $\rho_3(1690)$ and $\omega_3(1670)$.

$(4\pi)^{\pm}$ MODE

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
The data in this block is included in the average printed for a previous datablock.						
129±10 OUR AVERAGE						
123±13		[21] EVANGELISTA	81	OMEG	−	12 $\pi^- p \rightarrow p 4\pi$
105±30	177	BALTAY	78B	HBC	+	15 $\pi^+ p \rightarrow p 4\pi$
169^{+70}_{-48}		CASON	73	HBC	−	8,18.5 $\pi^- p$
135±30	144	BARTSCH	70B	HBC	+	8 $\pi^+ p \rightarrow N 4\pi$
160±30	102	BARTSCH	70B	HBC	+	8 $\pi^+ p \rightarrow N 2\rho$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
230±28		[22] EVANGELISTA	81	OMEG	−	12 $\pi^- p \rightarrow p 4\pi$
184±33		[23] EVANGELISTA	81	OMEG	−	12 $\pi^- p \rightarrow p 4\pi$
150	66	[24] KLIGER	74	HBC	−	4.5 $\pi^- p \rightarrow p 4\pi$
106±25		THOMPSON	74	HBC	+	13 $\pi^+ p$
125^{+83}_{-35}		[24] CASON	73	HBC	−	8,18.5 $\pi^- p$
130±30		HOLMES	72	HBC	+	10–12 $K^+ p$
180±30	90	[24] BARTSCH	70B	HBC	+	8 $\pi^+ p \rightarrow N a_2 \pi$
100±35		BALTAY	68	HBC	+	7, 8.5 $\pi^+ p$

[21] From $\rho^- \rho^0$ mode, not independent of the other two EVANGELISTA 81 entries.
[22] From $a_2(1320)^- \pi^0$ mode, not independent of the other two EVANGELISTA 81 entries.
[23] From $a_2(1320)^0 \pi^-$ mode, not independent of the other two EVANGELISTA 81 entries.
[24] From $\rho^{\pm} \rho^0$ mode.

$\omega\pi$ MODE

VALUE (MeV)	DOCUMENT ID		TECN	CHG	COMMENT
The data in this block is included in the average printed for a previous datablock.					
190±40 OUR AVERAGE					
230±65	[25] ALDE	95	GAM2		38 $\pi^- p \rightarrow \omega \pi^0 n$
190±65	EVANGELISTA	81	OMEG	−	12 $\pi^- p \rightarrow \omega \pi p$
160±56	GESSAROLI	77	HBC		11 $\pi^- p \rightarrow \omega \pi p$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
89±25	THOMPSON	74	HBC	+	13 $\pi^+ p$
130^{+73}_{-43}	BARNHAM	70	HBC	+	10 $K^+ p \rightarrow \omega \pi X$

[25] Supersedes ALDE 92C.

$\eta\pi^+\pi^-$ MODE

(For difficulties with MMS experiments, see the $a_2(1320)$ mini-review in the 1973 edition.)

VALUE (MeV)		*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
The data in this block is included in the average printed for a previous datablock.						
126±40 OUR AVERAGE Error includes scale factor of 1.8.						
220±30±50		AMELIN	00	VES		37 $\pi^- p \to \eta\pi^+\pi^- n$
106±27		FUKUI	88	SPEC	0	8.95 $\pi^- p \to \eta\pi^+\pi^- n$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
195	[26]	ANDERSON	69	MMS	−	16 $\pi^- p$ backward
< 21	[26,27]	FOCACCI	66	MMS	−	7–12 $\pi^- p \to p$MM
< 30	[26,27]	FOCACCI	66	MMS	−	7–12 $\pi^- p \to p$MM
< 38	[26,27]	FOCACCI	66	MMS	−	7–12 $\pi^- p \to p$MM

[26] Seen in 2.5–3 GeV/c $\overline{p}p$. $2\pi^+2\pi^-$, with 0, 1, 2 $\pi^+\pi^-$ pairs in ρ^0 band not seen by OREN 74 (2.3 GeV/c $\overline{p}p$) with more statistics. (Jan. 1979)

[27] Not seen by BOWEN 72.

$\rho_3(1690)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)	Scale factor
Γ_1	4π	(71.1 ± 1.9) %	
Γ_2	$\pi^\pm\pi^+\pi^-\pi^0$	(67 ±22) %	
Γ_3	$\omega\pi$	(16 ± 6) %	
Γ_4	$\pi\pi$	(23.6 ± 1.3) %	
Γ_5	$K\overline{K}\pi$	(3.8 ± 1.2) %	
Γ_6	$K\overline{K}$	(1.58± 0.26) %	1.2
Γ_7	$\eta\pi^+\pi^-$	seen	
Γ_8	$\rho(770)\eta$	seen	
Γ_9	$\pi\pi\rho$ Excluding 2ρ and $a_2(1320)\pi$.		
Γ_{10}	$a_2(1320)\pi$		
Γ_{11}	$\rho\rho$		
Γ_{12}	$\phi\pi$		
Γ_{13}	$\eta\pi$		
Γ_{14}	$\pi^\pm 2\pi^+ 2\pi^-\pi^0$		

CONSTRAINED FIT INFORMATION

An overall fit to 5 branching ratios uses 10 measurements and one constraint to determine 4 parameters. The overall fit has a $\chi^2 =$ 14.7 for 7 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients $\left\langle\delta x_i \delta x_j\right\rangle/(\delta x_i \cdot \delta x_j)$, in percent, from the fit to the branching fractions, $x_i \equiv \Gamma_i/\Gamma_{\rm total}$. The fit constrains the x_i whose labels appear in this array to sum to one.

x_4	−77		
x_5	−74	17	
x_6	−15	2	0
	x_1	x_4	x_5

ρ_3(1690) BRANCHING RATIOS

$\Gamma(\pi\pi)/\Gamma_{\rm total}$ — Γ_4/Γ

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
0.236±0.013 OUR FIT					
0.243±0.013 OUR AVERAGE					
$0.259^{+0.018}_{-0.019}$	BECKER	79	ASPK	0	17 $\pi^- p$ polarized
0.23 ±0.02	CORDEN	79	OMEG		12–15 $\pi^- p \to n 2\pi$
0.22 ±0.04	[28] MATTHEWS	71C	HDBC	0	7 $\pi^+ n \to \pi^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.245±0.006	[29] ESTABROOKS	75	RVUE		17 $\pi^- p \to \pi^+ \pi^- n$

[28] One-pion-exchange model used in this estimation.
[29] From phase-shift analysis of HYAMS 75 data.

$\Gamma(\pi\pi)/\Gamma(\pi^\pm\pi^+\pi^-\pi^0)$ — Γ_4/Γ_2

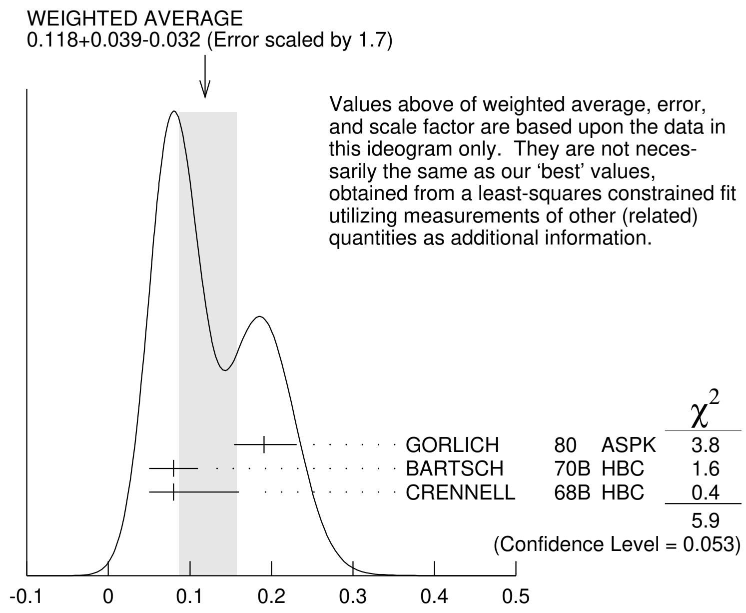
VALUE	DOCUMENT ID		TECN	CHG	COMMENT
0.35±0.11	CASON	73	HBC	−	8,18.5 $\pi^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.2	HOLMES	72	HBC	+	10–12 $K^+ p$
<0.12	BALLAM	71B	HBC	−	16 $\pi^- p$

$\Gamma(\pi\pi)/\Gamma(4\pi)$ — Γ_4/Γ_1

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
0.332±0.026 OUR FIT Error includes scale factor of 1.1.					
0.30 ±0.10	BALTAY	78B	HBC	0	15 $\pi^+ p \to p 4\pi$

$\Gamma(K\overline{K})/\Gamma(\pi\pi)$ $\qquad\qquad$ Γ_6/Γ_4

VALUE	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
0.067±0.011 OUR FIT Error includes scale factor of 1.2.					
$0.118^{+0.039}_{-0.032}$ OUR AVERAGE Error includes scale factor of 1.7. See the ideogram below.					
$0.191^{+0.040}_{-0.037}$	GORLICH	80	ASPK	0	17,18 $\pi^- p$ polarized
0.08 ± 0.03	BARTSCH	70B	HBC	+	8 $\pi^+ p$
$0.08\ ^{+0.08}_{-0.03}$	CRENNELL	68B	HBC		6.0 $\pi^- p$



$\Gamma(K\overline{K})/\Gamma(\pi\pi)$

$\Gamma(K\overline{K}\pi)/\Gamma(\pi\pi)$ $\qquad\qquad$ Γ_5/Γ_4

VALUE	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
0.16±0.05 OUR FIT					
0.16±0.05	[30] BARTSCH	70B	HBC	+	8 $\pi^+ p$

[30] Increased by us to correspond to B($\rho_3(1690) \rightarrow \pi\pi$)=0.24.

$\left[\Gamma(\pi\pi\rho)+\Gamma(a_2(1320)\pi)+\Gamma(\rho\rho)\right]/\Gamma(\pi^\pm\pi^+\pi^-\pi^0)$ $\qquad$ $(\Gamma_9+\Gamma_{10}+\Gamma_{11})/\Gamma_2$

VALUE	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
0.94±0.09 OUR AVERAGE					
0.96±0.21	BALTAY	78B	HBC	+	15 $\pi^+ p \rightarrow p 4\pi$
0.88±0.15	BALLAM	71B	HBC	−	16 $\pi^- p$
1 ±0.15	BARTSCH	70B	HBC	+	8 $\pi^+ p$
consistent with 1	CASO	68	HBC	−	11 $\pi^- p$

$\Gamma(\rho\rho)/\Gamma(\pi^{\pm}\pi^{+}\pi^{-}\pi^{0})$ Γ_{11}/Γ_{2}

VALUE	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •						
0.12±0.11		BALTAY	78B	HBC	+	15 $\pi^{+} p \rightarrow p 4\pi$
0.56	66	KLIGER	74	HBC	−	4.5 $\pi^{-} p \rightarrow p 4\pi$
0.13±0.09		[31] THOMPSON	74	HBC	+	13 $\pi^{+} p$
0.7 ±0.15		BARTSCH	70B	HBC	+	8 $\pi^{+} p$

[31] $\rho\rho$ and $a_2(1320)\pi$ modes are indistinguishable.

$\Gamma(\rho\rho)/[\Gamma(\pi\pi\rho)+\Gamma(a_2(1320)\pi)+\Gamma(\rho\rho)]$ $\Gamma_{11}/(\Gamma_{9}+\Gamma_{10}+\Gamma_{11})$

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.48±0.16	CASO	68	HBC	−	11 $\pi^{-} p$

$\Gamma(a_2(1320)\pi)/\Gamma(\pi^{\pm}\pi^{+}\pi^{-}\pi^{0})$ Γ_{10}/Γ_{2}

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.66±0.08	BALTAY	78B	HBC	+	15 $\pi^{+} p \rightarrow p 4\pi$
0.36±0.14	[32] THOMPSON	74	HBC	+	13 $\pi^{+} p$
not seen	CASON	73	HBC	−	8,18.5 $\pi^{-} p$
0.6 ±0.15	BARTSCH	70B	HBC	+	8 $\pi^{+} p$
0.6	BALTAY	68	HBC	+	7,8.5 $\pi^{+} p$

[32] $\rho\rho$ and $a_2(1320)\pi$ modes are indistinguishable.

$\Gamma(\omega\pi)/\Gamma(\pi^{\pm}\pi^{+}\pi^{-}\pi^{0})$ Γ_{3}/Γ_{2}

VALUE	CL%	DOCUMENT ID		TECN	CHG	COMMENT
0.23±0.05 OUR AVERAGE Error includes scale factor of 1.2.						
0.33±0.07		THOMPSON	74	HBC	+	13 $\pi^{+} p$
0.12±0.07		BALLAM	71B	HBC	−	16 $\pi^{-} p$
0.25±0.10		BALTAY	68	HBC	+	7,8.5 $\pi^{+} p$
0.25±0.10		JOHNSTON	68	HBC	−	7.0 $\pi^{-} p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.11	95	BALTAY	78B	HBC	+	15 $\pi^{+} p \rightarrow p 4\pi$
<0.09		KLIGER	74	HBC	−	4.5 $\pi^{-} p \rightarrow p 4\pi$

$\Gamma(\phi\pi)/\Gamma(\pi^{\pm}\pi^{+}\pi^{-}\pi^{0})$ Γ_{12}/Γ_{2}

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.11	BALTAY	68	HBC	+	7,8.5 $\pi^{+} p$

$\Gamma(\pi^{\pm}2\pi^{+}2\pi^{-}\pi^{0})/\Gamma(\pi^{\pm}\pi^{+}\pi^{-}\pi^{0})$ Γ_{14}/Γ_{2}

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.15	BALTAY	68	HBC	+	7,8.5 $\pi^{+} p$

$\Gamma(\eta\pi)/\Gamma(\pi^{\pm}\pi^{+}\pi^{-}\pi^{0})$ — Γ_{13}/Γ_2

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.02	THOMPSON	74	HBC	$+$	$13\ \pi^{+} p$

$\Gamma(K\overline{K})/\Gamma_{\text{total}}$ — Γ_6/Γ

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
0.0158±0.0026 OUR FIT Error includes scale factor of 1.2.					
0.0130±0.0024 OUR AVERAGE					
0.013 ±0.003	COSTA...	80	OMEG	0	$10\ \pi^{-} p \rightarrow K^{+} K^{-} n$
0.013 ±0.004	[33] MARTIN	78B	SPEC	$-$	$10\ \pi p \rightarrow K^0_S K^{-} p$

[33] From $(\Gamma_4 \Gamma_6)^{1/2} = 0.056 \pm 0.034$ assuming $B(\rho_3(1690) \rightarrow \pi\pi) = 0.24$.

$\Gamma(\omega\pi)/[\Gamma(\omega\pi)+\Gamma(\rho\rho)]$ — $\Gamma_3/(\Gamma_3+\Gamma_{11})$

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.22±0.08	CASON	73	HBC	$-$	$8,18.5\ \pi^{-} p$

$\Gamma(\eta\pi^{+}\pi^{-})/\Gamma_{\text{total}}$ — Γ_7/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
seen	FUKUI	88	SPEC	$8.95\ \pi^{-} p \rightarrow \eta\pi^{+}\pi^{-} n$

$\Gamma(a_2(1320)\pi)/\Gamma(\rho(770)\eta)$ — Γ_{10}/Γ_8

VALUE	DOCUMENT ID		TECN	COMMENT
5.5±2.0	AMELIN	00	VES	$37\ \pi^{-} p \rightarrow \eta\pi^{+}\pi^{-} n$

$\rho_3(1690)$ REFERENCES

AMELIN	00	NP A668 83	D. Amelin *et al.*	(VES Collab.)
ALDE	95	ZPHY C66 379	D.M. Alde *et al.*	(GAMS Collab.) JP
ALDE	92C	ZPHY C54 553	D.M. Alde *et al.*	(BELG, SERP, KEK, LANL+)
FUKUI	88	PL B202 441	S. Fukui *et al.*	(SUGI, NAGO, KEK, KYOT+)
DENNEY	83	PR D28 2726	D.L. Denney *et al.*	(IOWA, MICH)
EVANGELISTA	81	NP B178 197	C. Evangelista *et al.*	(BARI, BONN, CERN+)
ALPER	80	PL 94B 422	B. Alper *et al.*	(AMST, CERN, CRAC, MPIM+)
COSTA...	80	NP B175 402	G. Costa de Beauregard *et al.*	(BARI, BONN+)
GORLICH	80	NP B174 16	L. Gorlich *et al.*	(CRAC, MPIM, CERN+)
BECKER	79	NP B151 46	H. Becker *et al.*	(MPIM, CERN, ZEEM, CRAC)
CORDEN	79	NP B157 250	M.J. Corden *et al.*	(BIRM, RHEL, TELA+) JP
BALTAY	78B	PR D17 62	C. Baltay *et al.*	(COLU, BING)
MARTIN	78B	NP B140 158	A.D. Martin *et al.*	(DURH, GEVA)
MARTIN	78D	PL 74B 417	A.D. Martin *et al.*	(DURH, GEVA)
ANTIPOV	77	NP B119 45	Y.M. Antipov *et al.*	(SERP, GEVA)
GESSAROLI	77	NP B126 382	R. Gessaroli *et al.*	(BGNA, FIRZ, GENO+)
BLUM	75	PL 57B 403	W. Blum *et al.*	(CERN, MPIM) JP
ESTABROOKS	75	NP B95 322	P.G. Estabrooks, A.D. Martin	(DURH)
HYAMS	75	NP B100 205	B.D. Hyams *et al.*	(CERN, MPIM)
ENGLER	74	PR D10 2070	A. Engler *et al.*	(CMU, CASE)
GRAYER	74	NP B75 189	G. Grayer *et al.*	(CERN, MPIM)
KLIGER	74	SJNP 19 428	G.K. Kliger *et al.*	(ITEP)
		Translated from YAF 19 839.		

OREN	74	NP B71 189	Y. Oren *et al.*	(ANL, OXF)
THOMPSON	74	NP B69 220	G. Thompson *et al.*	(PURD)
CASON	73	PR D7 1971	N.M. Cason *et al.*	(NDAM)
BOWEN	72	PRL 29 890	D.R. Bowen *et al.*	(NEAS, STON)
HOLMES	72	PR D6 3336	R. Holmes *et al.*	(ROCH)
BALLAM	71B	PR D3 2606	J. Ballam *et al.*	(SLAC)
MATTHEWS	71C	NP B33 1	J.A.J. Matthews *et al.*	(TNTO, WISC) JP
ARMENISE	70	LNC 4 199	N. Armenise *et al.*	(BARI, BGNA, FIRZ)
BARNHAM	70	PRL 24 1083	K.W.J. Barnham *et al.*	(BIRM)
BARTSCH	70B	NP B22 109	J. Bartsch *et al.*	(AACH, BERL, CERN)
CASO	70	LNC 3 707	C. Caso *et al.*	(GENO, HAMB, MILA, SACL)
STUNTEBECK	70	PL 32B 391	P.H. Stuntebeck *et al.*	(NDAM)
ADERHOLZ	69	NP B11 259	M. Aderholz *et al.*	(AACH3, BERL, CERN+)
ANDERSON	69	PRL 22 1390	E.W. Anderson *et al.*	(BNL, CMU)
ARMENISE	68	NC 54A 999	N. Armenise *et al.*	(BARI, BGNA, FIRZ+) I
BALTAY	68	PRL 20 887	C. Baltay *et al.*	(COLU, ROCH, RUTG, YALE) I
CASO	68	NC 54A 983	C. Caso *et al.*	(GENO, HAMB, MILA, SACL)
CRENNELL	68B	PL 28B 136	D.J. Crennell *et al.*	(BNL)
JOHNSTON	68	PRL 20 1414	T.F. Johnston *et al.*	(TNTO, WISC) IJP
FOCACCI	66	PRL 17 890	M.N. Focacci *et al.*	(CERN)
GOLDBERG	65	PL 17 354	M. Goldberg *et al.*	(CERN, EPOL, ORSAY+)

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BARNETT	83B	PL 120B 455	B. Barnett *et al.*	(JHU)
EHRLICH	66	PR 152 1194	R. Ehrlich, W. Selove, H. Yuta	(PENN)
LEVRAT	66	PL 22 714	B. Levrat *et al.*	
SEGUINOT	66	PL 19 712	J. Seguinot *et al.*	
BELLINI	65	NC 40A 948	G. Bellini *et al.*	(MILA)
DEUTSCH...	65	PL 18 351	M. Deutschmann *et al.*	(AACH3, BERL, CERN)
FORINO	65	PL 19 65	A. Forino *et al.*	(BGNA, ORSAY, SACL)