$\pi(1300)$

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

$\pi(1300)$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
1300 ±100 OUR ESTIMATE			
• • • We do not use the following data for averages, fits, limits, etc. • • •			
1190 ± 30	ZIELINSKI 84	SPEC	$200\ \pi^+ Z \to Z 3\pi$
1240 ± 30	BELLINI 82	SPEC	$40\ \pi^- A \to A 3\pi$
1273.0± 50.0	[1] AARON 81	RVUE	
1342 ± 20	BONESINI 81	OMEG	$12\ \pi^- p \to p 3\pi$
∼ 1400	DAUM 81B	SPEC	$63,94\ \pi^- p$

[1] Uses multichannel Aitchison-Bowler model (BOWLER 75). Uses data from DAUM 80 and DANKOWYCH 81.

$\pi(1300)$ WIDTH

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
200 to 600 OUR ESTIMATE			
• • • We do not use the following data for averages, fits, limits, etc. • • •			
440 ± 80	ZIELINSKI 84	SPEC	$200\ \pi^+ Z \to Z 3\pi$
360 ±120	BELLINI 82	SPEC	$40\ \pi^- A \to A 3\pi$
580.0±100.0	[2] AARON 81	RVUE	
220 ± 70	BONESINI 81	OMEG	$12\ \pi^- p \to p 3\pi$
∼ 600	DAUM 81B	SPEC	$63,94\ \pi^- p$

[2] Uses multichannel Aitchison-Bowler model (BOWLER 75). Uses data from DAUM 80 and DANKOWYCH 81.

$\pi(1300)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\rho\pi$	seen
Γ_2	$\pi(\pi\pi)_{S\text{-wave}}$	seen
Γ_3	$f_0(1300)\pi$	

$\pi(1300)$ BRANCHING RATIOS

$\Gamma(\pi(\pi\pi)_{S\text{-wave}})/\Gamma(\rho\pi)$ — Γ_2/Γ_1

VALUE	DOCUMENT ID	TECN
• • • We do not use the following data for averages, fits, limits, etc. • • •		
2.12	[3] AARON 81	RVUE

[3] Uses multichannel Aitchison-Bowler model (BOWLER 75). Uses data from DAUM 80 and DANKOWYCH 81.

$\pi(1300)$ REFERENCES

ZIELINSKI	84	PR D30 1855	+Berg, Chandlee, Cihangir+	(ROCH, MINN, FNAL)
BELLINI	82	PRL 48 1697	+Frabetti, Ivanshin, Litkin+	(MILA, BGNA, JINR)
AARON	81	PR D24 1207	+Longacre	(NEAS, BNL)
BONESINI	81	PL 103B 75	+Donald+	(MILA, LIVP, DARE, CERN, BARI, BONN)
DANKOWY...	81	PRL 46 580	Dankowych+	(TNTO, BNL, CARL, MCGI, OHIO)
DAUM	81B	NP B182 269	+Hertzberger+	(AMST, CERN, CRAC, MPIM, OXF+)
DAUM	80	PL 89B 281	+Hertzberger+	(AMST, CERN, CRAC, MPIM, OXF+)
BOWLER	75	NP B97 227	+Game, Aitchison, Dainton	(OXFTP, DARE)

$a_2(1320)$

$I^G(J^{PC}) = 1^-(2^{++})$

$a_2(1320)$ MASS

3π AND $K^\pm K^0_S$ MODES

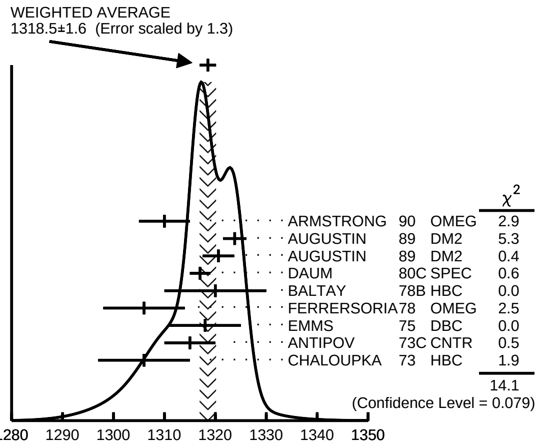
VALUE (MeV)	DOCUMENT ID
1318.4±0.6 OUR AVERAGE	Includes data from the 4 datablocks that follow this one. Error includes scale factor of 1.1.

3π MODE

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

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
1318.5± 1.6 OUR AVERAGE		Error includes scale factor of 1.3. See the ideogram below.			
1310 ± 5		ARMSTRONG 90	OMEG	0	$300.0 pp \to pp\pi^+\pi^-\pi^0$
1323.8± 2.3	4022	AUGUSTIN 89	DM2	±	$J/\psi \to \rho^\pm a_2^\mp$
1320.6± 3.1	3562	AUGUSTIN 89	DM2	0	$J/\psi \to \rho^0 a_2^0$
1317.0± 2.0	25000	[1] DAUM 80C	SPEC	−	$63,94\ \pi^- p \to 3\pi p$
1320.0±10.0	1097	[1] BALTAY 78B	HBC	+0	$15\ \pi^+ p \to p 4\pi$
1306.0± 8.0		FERRERSORIA 78	OMEG	−	$9\ \pi^- p \to p 3\pi$
1318 ± 7	1600	[1] EMMS 75	DBC	0	$4\ \pi^+ n \to p(3\pi)^0$
1315 ± 5		[1] ANTIPOV 73C	CNTR	−	$25,40\ \pi^- p \to p\eta\pi^-$
1306 ± 9	1580	CHALOUPKA 73	HBC	−	$3.9\ \pi^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1305 ±14		CONDO 93	SHF		$\gamma p \to \eta\pi^+\pi^+\pi^-$
1310 ± 2		[1] EVANGELISTA 81	OMEG	−	$12\ \pi^- p \to 3\pi p$
1343.0±11.0	490	BALTAY 78B	HBC	0	$15\ \pi^+ p \to \Delta 3\pi$
1309 ± 5	5000	BINNIE 71	MMS	−	$\pi^- p$ near a_2 threshold
1299.0± 6.0	28000	BOWEN 71	MMS	−	$5\ \pi^- p$
1300 ± 6.0	24000	BOWEN 71	MMS	+	$5\ \pi^+ p$
1309.0± 4.0	17000	BOWEN 71	MMS	−	$7\ \pi^- p$
1306.0± 4.0	941	ALSTON-... 70	HBC	+	$7.0\ \pi^+ p \to 3\pi p$

[1] From a fit to $J^P = 2^+$ $\rho\pi$ partial wave.



$a_2(1320)$ mass, 3π mode (MeV)

$K^\pm K^0_S$ MODE

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

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
1318.1± 0.7 OUR AVERAGE					
1319.0± 5.0	4700	[2,3] CLELAND 82B	SPEC	+	$50\ \pi^+ p \to K^0_S K^+ p$
1324.0± 6.0	5200	[2,3] CLELAND 82B	SPEC	−	$50\ \pi^- p \to K^0_S K^- p$
1320.0± 2.0	4000	CHABAUD 80	SPEC	−	$17\ \pi^- A \to K^0_S K^- A$
1312.0± 4.0	11000	CHABAUD 78	SPEC	−	$9.8\ \pi^- p \to K^- K^0_S p$
1316.0± 2.0	4730	CHABAUD 78	SPEC	−	$18.8\ \pi^- p \to K^- K^0_S p$
1318 ± 1		[2,4] MARTIN 78D	SPEC	−	$10\ \pi^- p \to K^0_S K^- p$
1320.0± 2.0	2724	MARGULIE 76	SPEC	−	$23\ \pi^- p \to K^- K^0_S p$
1313.0± 4.0	730	FOLEY 72	CNTR	−	$20.3\ \pi^- p \to K^- K^0_S p$
1319.0± 3.0	1500	[4] GRAYER 71	ASPK	−	$17.2\ \pi^- p \to K^- K^0_S p$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1330.0±11.0	1000	[2,3] CLELAND 82B	SPEC	+	$30\ \pi^+ p \to K^0_S K^+ p$
1324.0± 5.0	350	HYAMS 78	ASPK	+	$12.7\ \pi^+ p \to K^+ K^0_S p$

[2] From a fit to $J^P = 2^+$ partial wave.
[3] Number of events evaluated by us.
[4] Systematic error in mass scale subtracted.

$\eta\pi$ MODE

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

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
1320.1±2.0 OUR AVERAGE					
1325.1±5.1		AOYAGI 93	BKEI		$\pi^- p \to \eta\pi^- p$
1324 ±5		ARMSTRONG 93C	SPEC	0	$\overline{p}p \to \pi^0\eta\eta \to 6\gamma$
1317.7±1.4±2.0		BELADIDZE 93	VES		$37\pi^- N \to \eta\pi^- N$
1323 ±8	1000	[5] KEY 73	OSPK	−	$6\ \pi^- p \to p\pi^-\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1336.2±1.7	2561	DELFOSSE 81	SPEC	+	$\pi^\pm p \to p\pi^\pm\eta$
1330.7±2.4	1653	DELFOSSE 81	SPEC	−	$\pi^\pm p \to p\pi^\pm\eta$
1324 ±8	6200	[5,6] CONFORTO 73	OSPK	−	$6\ \pi^- p \to p MM^-$

[5] Error includes 5 MeV systematic mass-scale error.
[6] Missing mass with enriched MMS $= \eta\pi^-$, $\eta = 2\gamma$.

$\eta'\pi$ MODE

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

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
1327.0±10.7	BELADIDZE 93	VES	$37\pi^- N \to \eta'\pi^- N$