NODE=M111

$\pi_1(1400)$

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

NODE=M111

See also the mini-review under non-$q\overline{q}$ candidates in PDG 06, Journal of Physics, G **33** 1 (2006).

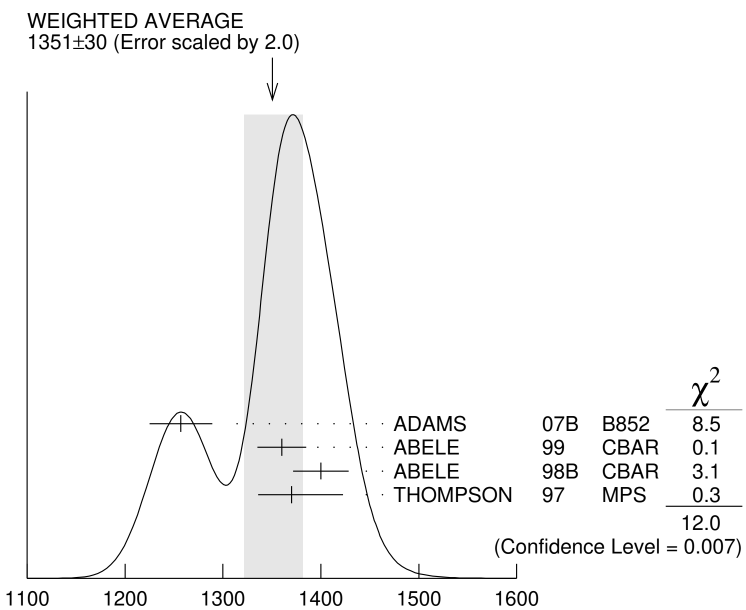
$\pi_1(1400)$ MASS

NODE=M111205

NODE=M111M

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1351 ±30 OUR AVERAGE		Error includes scale factor of 2.0. See the ideogram below.				
1257 ±20 ±25	23.5k	ADAMS	07B	B852		18 $\pi^- p \to \eta\pi^0 n$
1360 ±25		ABELE	99	CBAR		0.0 $\overline{p}p \to \pi^0\pi^0\eta$
1400 ±20 ±20		ABELE	98B	CBAR		0.0 $\overline{p}n \to \pi^-\pi^0\eta$
1370 ±16 $^{+50}_{-30}$		[1] THOMPSON	97	MPS		18 $\pi^- p \to \eta\pi^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
1323.1± 4.6		[2] AOYAGI	93	BKEI		$\pi^- p \to \eta\pi^- p$
1406 ±20		[3] ALDE	88B	GAM4	0	100 $\pi^- p \to \eta\pi^0 n$

[1] Natural parity exchange, questioned by DZIERBA 03. NODE=M111M;LINKAGE=B
[2] Unnatural parity exchange. NODE=M111M;LINKAGE=C
[3] Seen in the P_0-wave intensity of the $\eta\pi^0$ system, unnatural parity exchange. NODE=M111M;LINKAGE=A



THE IDEOGRAM SUBTITLE IS MISSING.

ERROR=1

$\pi_1(1400)$ WIDTH

NODE=M111210

NODE=M111W

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
313 ±40 OUR AVERAGE						
354 ±64 ± 58	23.5k	ADAMS	07B	B852		18 $\pi^- p \to \eta\pi^0 n$
220 ±90		ABELE	99	CBAR		0.0 $\overline{p}p \to \pi^0\pi^0\eta$
310 ±50 $^{+50}_{-30}$		ABELE	98B	CBAR		0.0 $\overline{p}n \to \pi^-\pi^0\eta$
385 ±40 $^{+65}_{-105}$		[4] THOMPSON	97	MPS		18 $\pi^- p \to \eta\pi^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
143.2±12.5		[5] AOYAGI	93	BKEI		$\pi^- p \to \eta\pi^- p$
180 ±20		[6] ALDE	88B	GAM4	0	100 $\pi^- p \to \eta\pi^0 n$

[4] Resolution is not unfolded, natural parity exchange, questioned by DZIERBA 03. NODE=M111W;LINKAGE=QQ
[5] Unnatural parity exchange. NODE=M111W;LINKAGE=C
[6] Seen in the P_0-wave intensity of the $\eta\pi^0$ system, unnatural parity exchange. NODE=M111W;LINKAGE=A

$\pi_1(1400)$ DECAY MODES

NODE=M111215;NODE=M111

	Mode	Fraction (Γ_i/Γ)	
Γ_1	$\eta\pi^0$	seen	DESIG=1;OUR EST;→ NOT CHECKED ←
Γ_2	$\eta\pi^-$	seen	DESIG=4;OUR EST;→ NOT CHECKED ←
Γ_3	$\eta'\pi$		DESIG=3

$\pi_1(1400)$ BRANCHING RATIOS

NODE=M111220

$\Gamma(\eta\pi^0)/\Gamma_{total}$ — Γ_1/Γ

NODE=M111R1
NODE=M111R1

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
not seen	PROKOSHKIN	95B	GAM4		100 $\pi^- p \rightarrow \eta\pi^0 n$
not seen	[7] BUGG	94	RVUE		$\overline{p}p \rightarrow \eta 2\pi^0$
not seen	[8] APEL	81	NICE	0	40 $\pi^- p \rightarrow \eta\pi^0 n$

[7] Using Crystal Barrel data. NODE=M111R1;LINKAGE=C

[8] A general fit allowing S, D, and P waves (including m=0) is not done because of limited statistics. NODE=M111R1;LINKAGE=B

$\Gamma(\eta\pi^-)/\Gamma_{total}$ — Γ_2/Γ

NODE=M111R4
NODE=M111R4

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
possibly seen	BELADIDZE	93	VES	$37\pi^- N \rightarrow \eta\pi^- N$

$\Gamma(\eta'\pi)/\Gamma(\eta\pi^0)$ — Γ_3/Γ_1

NODE=M111R3
NODE=M111R3

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$0.80	95	BOUTEMEUR	90	GAM4	100 $\pi^- p \rightarrow 4\gamma n$

$\pi_1(1400)$ REFERENCES

NODE=M111

ADAMS	07B	PL B657 27	G.S. Adams *et al.*	(BNL E852 Collab.)	REFID=52048
PDG	06	JPG 33 1	W.-M. Yao *et al.*	(PDG Collab.)	REFID=51004
DZIERBA	03	PR D67 094015	A.R. Dzierba *et al.*		REFID=49412
ABELE	99	PL B446 349	A. Abele *et al.*	(Crystal Barrel Collab.)	REFID=46602
ABELE	98B	PL B423 175	A. Abele *et al.*	(Crystal Barrel Collab.)	REFID=45864
THOMPSON	97	PRL 79 1630	D.R. Thompson *et al.*	(BNL E852 Collab.)	REFID=45584
PROKOSHKIN	95B	PAN 58 606	Y.D. Prokoshkin, S.A. Sadovsky	(SERP)	REFID=44619
		Translated from YAF 58 662.			
BUGG	94	PR D50 4412	D.V. Bugg *et al.*	(LOQM)	REFID=44078
AOYAGI	93	PL B314 246	H. Aoyagi *et al.*	(BKEI Collab.)	REFID=43599
BELADIDZE	93	PL B313 276	G.M. Beladidze *et al.*	(VES Collab.)	REFID=43598
BOUTEMEUR	90	Hadron 89 Conf. p 119	M. Boutemeur, M. Poulet	(SERP, BELG, LANL+)	REFID=41751
ALDE	88B	PL B205 397	D.M. Alde *et al.*	(SERP, BELG, LANL, LAPP) IGJPC	REFID=40558
APEL	81	NP B193 269	W.D. Apel *et al.*	(SERP, CERN)	REFID=22913

OTHER RELATED PAPERS

BUGG	08	JPG 35 075005	D.V. Bugg		REFID=52272
GENERAL	07	EPJ C51 347	I.J. General, S.R. Contanch, F.J. Llanes-Estrada		REFID=51696
GENERAL	07A	PL B653 216	L.J. General *et al.*		REFID=51897
YANG	07	PR D76 094001	K.-C. Yang		REFID=52056
COOK	06	PR D74 094501	M.S. Cook, H.R. Fiebig		REFID=51516
CUI	06	PR D73 014018	Y. Cui *et al.*		REFID=51029
HEDDITCH	05	PR D72 114507	J.N. Hedditch *et al.*		REFID=50998
ZHANG	05	PR D71 011502R	Z.F. Zhang, H.Y. Jin		REFID=50461
BERNARD	03	PR D68 074505	C. Bernard *et al.*		REFID=49623
JIN	03	PR D67 014025	H.Y. Jin, J.G. Korener, T.G. Steele		REFID=49184
SZCZEPANIAK	03B	PRL 91 092002	A.P. Szczepaniak *et al.*		REFID=49575
ZHANG	03	PR D67 074020	A. Zhang, T.G. Steele		REFID=49409
ACHASOV	02J	PAN 65 552	N.N. Achasov, G.N. Shestakov		REFID=48820
		Translated from YAF 65 579.			
CHUNG	02C	EPJ A15 539	S.U. Chung, E. Klempt, J.G. Korener		REFID=49176
ZHANG	02	PR D65 096005	R. Zhang *et al.*		REFID=48856
IDDIR	01	PL B507 183	F. Iddir, A.S. Safir		REFID=48326
SADOVSKY	00	NP A655 131c	S.A. Sadovsky		REFID=47430
ALDE	99B	PAN 62 421	D. Alde *et al.*	(GAMS Collab.)	REFID=46913
		Translated from YAF 62 462.			
CHUNG	99	PR D60 092001	S.U. Chung *et al.*	(BNL E852 Collab.)	REFID=47387
DONNACHIE	98	PR D58 114012	A. Donnachie *et al.*		REFID=46598
LACOCK	97	PL B401 308	P. Lacock *et al.*	(EDIN, LIVP)	REFID=45773
SVEC	97C	PR D56 4355	M. Svec	(MCGI)	REFID=45691
PROKOSHKIN	95C	PAN 58 853	Y.D. Prokoshkin, S.A. Sadovsky	(SERP)	REFID=44620
		Translated from YAF 58 921.			
KALASHNIK...	94	ZPHY C62 323	Y.S. Kalashnikova	(ITEP)	REFID=44088
TUAN	88	PL B213 537	S.F. Tuan, T. Ferbel, R.H. Dalitz	(HAWA, ROCH+)	REFID=40561
ZIELINSKI	87	ZPHY C34 255	M. Zielinski	(ROCH)	REFID=40926