$\rho(2150)$

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

OMITTED FROM SUMMARY TABLE

This entry was previously called $T_1(2190)$.

ρ(2150) MASS

$e^+e^- \rightarrow \pi^+\pi^-, K^+K^-, 6\pi$

VALUE (MeV)	DOCUMENT ID		TECN	CHG	COMMENT
2149±17 OUR AVERAGE	Includes data from the datablock that follows this one.				
2153±37	BIAGINI	91	RVUE		$e^+e^- \rightarrow \pi^+\pi^-, K^+K^-$
2110±50	[2] CLEGG	90	RVUE	0	$e^+e^- \rightarrow 3(\pi^+\pi^-), 2(\pi^+\pi^-\pi^0)$

$\overline{p}p \rightarrow \pi\pi$

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
~ 2191	HASAN	94	RVUE	$\overline{p}p \rightarrow \pi\pi$
~ 1988	HASAN	94	RVUE	$\overline{p}p \rightarrow \pi\pi$
~ 2070	[1] OAKDEN	94	RVUE	0.36–1.55 $\overline{p}p \rightarrow \pi\pi$
~ 2170	[3] MARTIN	80B	RVUE	
~ 2100	[3] MARTIN	80C	RVUE	

[1] See however KLOET 96 who fit $\pi^+\pi^-$ only and find waves only up to $J = 3$ to be important but not significantly resonant.

S-CHANNEL $\overline{N}N$

VALUE (MeV)	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
~ 2190	[4] CUTTS	78B	CNTR		0.97–3 $\overline{p}p \rightarrow \overline{N}N$
2155±15	[4,5] COUPLAND	77	CNTR	0	0.7–2.4 $\overline{p}p \rightarrow \overline{p}p$
2193± 2	[4,6] ALSPECTOR	73	CNTR		$\overline{p}p$ S channel
2190±10	[7] ABRAMS	70	CNTR		S channel $\overline{p}N$

$\pi^- p \rightarrow \omega\pi^0 n$

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
The data in this block is included in the average printed for a previous datablock.				
2155±21 OUR AVERAGE				
2140±30	ALDE	95	GAM2	38 $\pi^- p \rightarrow \omega\pi^0 n$
2170±30	ALDE	92C	GAM4	100 $\pi^- p \rightarrow \omega\pi^0 n$

[2] Includes ATKINSON 85.

[3] $I(J^P) = 1(1^-)$ from simultaneous analysis of $p\overline{p} \rightarrow \pi^-\pi^+$ and $\pi^0\pi^0$.

[4] Isospins 0 and 1 not separated.

[5] From a fit to the total elastic cross section.

[6] Referred to as T or T region by ALSPECTOR 73.

[7] Seen as bump in $I = 1$ state. See also COOPER 68. PEASLEE 75 confirm $\overline{p}p$ results of ABRAMS 70, no narrow structure.

$\rho(2150)$ WIDTH

$e^+e^- \to \pi^+\pi^-, K^+K^-, 6\pi$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
363± 50 OUR AVERAGE	Includes data from the datablock that follows this one.				
389± 79	BIAGINI	91	RVUE		$e^+e^- \to \pi^+\pi^-, K^+K^-$
410±100	[9] CLEGG	90	RVUE	0	$e^+e^- \to 3(\pi^+\pi^-), 2(\pi^+\pi^-\pi^0)$

$\overline{p}p \to \pi\pi$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
∼ 296	HASAN	94	RVUE	$\overline{p}p \to \pi\pi$
∼ 244	HASAN	94	RVUE	$\overline{p}p \to \pi\pi$
∼ 40	[8] OAKDEN	94	RVUE	0.36–1.55 $\overline{p}p \to \pi\pi$
∼ 250	[10] MARTIN	80B	RVUE	
∼ 200	[10] MARTIN	80C	RVUE	

[8] See however KLOET 96 who fit $\pi^+\pi^-$ only and find waves only up to $J = 3$ to be important but not significantly resonant.

S-CHANNEL $\overline{N}N$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •					
135±75	[11,12] COUPLAND	77	CNTR	0	0.7–2.4 $\overline{p}p \to \overline{p}p$
98± 8	[12] ALSPECTOR	73	CNTR		$\overline{p}p$ S channel
∼ 85	[13] ABRAMS	70	CNTR		S channel $\overline{p}N$

$\pi^-p \to \omega\pi^0 n$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
The data in this block is included in the average printed for a previous datablock.				
320±70	ALDE	95	GAM2	38 $\pi^-p \to \omega\pi^0 n$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
∼ 300	ALDE	92C	GAM4	100 $\pi^-p \to \omega\pi^0 n$

[9] Includes ATKINSON 85.
[10] $I(J^P) = 1(1^-)$ from simultaneous analysis of $p\overline{p} \to \pi^-\pi^+$ and $\pi^0\pi^0$.
[11] From a fit to the total elastic cross section.
[12] Isospins 0 and 1 not separated.
[13] Seen as bump in $I = 1$ state. See also COOPER 68. PEASLEE 75 confirm $\overline{p}p$ results of ABRAMS 70, no narrow structure.

$\rho(2150)$ REFERENCES

KLOET	96	PR D53 6120	+Myhrer	(RUTG, NORD)	
ALDE	95	ZPHY C66 379	+Binon, Bricman+	(GAMS Collab.)	JP
HASAN	94	PL B334 215	+Bugg	(LOQM)	
OAKDEN	94	NPA 574 731	+Pennington	(DURH)	
ALDE	92C	ZPHY C54 553	+Bencheikh, Binon+	(BELG, SERP, KEK, LANL, LAPP)	
BIAGINI	91	NC 104A 363	+Dubnicka+	(FRAS, PRAG)	
CLEGG	90	ZPHY C45 677	+Donnachie	(LANC, MCHS)	
ATKINSON	85	ZPHY C29 333	+	(BONN, CERN, GLAS, LANC, MCHS, IPNP+)	
MARTIN	80B	NP B176 355	+Morgan	(LOUC, RHEL)	JP
MARTIN	80C	NP B169 216	+Pennington	(DURH)	JP
CUTTS	78B	PR D17 16	+Good, Grannis, Green, Lee+	(STON, WISC)	
COUPLAND	77	PL 71B 460	+Eisenhandler, Gibson, Astbury+	(LOQM, RHEL)	
PEASLEE	75	PL 57B 189	+Demarzo, Guerriero+	(CANB, BARI, BROW, MIT)	
ALSPECTOR	73	PRL 30 511	+Cohen, Cvijanovich+	(RUTG, UPNJ)	
ABRAMS	70	PR D1 1917	+Cool, Giacomelli, Kycia, Leontic, Li+	(BNL)	
COOPER	68	PRL 20 1059	+Hyman, Manner, Musgrave+	(ANL)	

OTHER RELATED PAPERS

BRICMAN	69	PL 29B 451	+Ferro-Luzzi, Bizard+	(CERN, CAEN, SACL)
ABRAMS	67C	PRL 18 1209	+Cool, Giacomelli, Kycia, Leontic, Li+	(BNL)