

$\hat{\rho}(1405)$

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

OMITTED FROM SUMMARY TABLE

See also the mini-review under non- $q\bar{q}$ candidates. (See the index for the page number.) **$\hat{\rho}(1405)$ MASS**

VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT
1392 $\begin{smallmatrix} +25 \\ -22 \end{smallmatrix}$ OUR AVERAGE				
1400 $\pm 20 \pm 20$	ABELE	98B	CBAR	0.0 $\bar{p}n \rightarrow \pi^- \pi^0 \eta$
1370 $\pm 16 \begin{smallmatrix} +50 \\ -30 \end{smallmatrix}$	¹ THOMPSON	97	MPS	18 $\pi^- p \rightarrow \eta \pi^- p$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
1323.1 ± 4.6	² AOYAGI	93	BKEI	$\pi^- p \rightarrow \eta \pi^- p$
1406 ± 20	³ ALDE	88B	GAM4 0	100 $\pi^- p \rightarrow \eta \pi^0 n$

¹ Natural parity exchange.² Unnatural parity exchange.³ Seen in the P_0 -wave intensity of the $\eta \pi^0$ system, unnatural parity exchange. **$\hat{\rho}(1405)$ WIDTH**

VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT
333 ± 50 OUR AVERAGE				
310 $\pm 50 \begin{smallmatrix} +50 \\ -30 \end{smallmatrix}$	ABELE	98B	CBAR	0.0 $\bar{p}n \rightarrow \pi^- \pi^0 \eta$
385 $\pm 40 \begin{smallmatrix} +65 \\ -105 \end{smallmatrix}$	⁴ THOMPSON	97	MPS	18 $\pi^- p \rightarrow \eta \pi^- p$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
143.2 ± 12.5	⁵ AOYAGI	93	BKEI	$\pi^- p \rightarrow \eta \pi^- p$
180 ± 20	⁶ ALDE	88B	GAM4 0	100 $\pi^- p \rightarrow \eta \pi^0 n$

⁴ Resolution is not unfolded, natural parity exchange.⁵ Unnatural parity exchange.⁶ Seen in the P_0 -wave intensity of the $\eta \pi^0$ system, unnatural parity exchange. **$\hat{\rho}(1405)$ DECAY MODES**

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad \eta \pi^0$	seen
$\Gamma_2 \quad \eta \pi^-$	seen
$\Gamma_3 \quad \eta' \pi$	possibly seen

$\rho(1405)$ BRANCHING RATIOS

$\Gamma(\eta\pi^0)/\Gamma_{\text{total}}$	<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>	Γ_1/Γ
not seen		PROKOSHKIN 95B	GAM4		100 $\pi^- p \rightarrow \eta\pi^0 n$	
not seen		⁷ BUGG	94	RVUE	$\bar{p} p \rightarrow \eta 2\pi^0$	
not seen		⁸ APEL	81	NICE 0	40 $\pi^- p \rightarrow \eta\pi^0 n$	

⁷ Using Crystal Barrel data.

⁸ A general fit allowing *S*, *D*, and *P* waves (including *m*=0) is not done because of limited statistics.

$\Gamma(\eta\pi^-)/\Gamma_{\text{total}}$	<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	Γ_2/Γ
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• • • We do not use the following data for averages, fits, limits, etc. • • •

possibly seen		BELADIDZE 93	VES		37 $\pi^- N \rightarrow \eta\pi^- N$
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$\Gamma(\eta'\pi)/\Gamma_{\text{total}}$	<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	Γ_3/Γ
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• • • We do not use the following data for averages, fits, limits, etc. • • •

possibly seen		BELADIDZE 93	VES		37 $\pi^- N \rightarrow \eta\pi^- N$
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$\Gamma(\eta'\pi)/\Gamma(\eta\pi^0)$	<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	Γ_3/Γ_1
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• • • We do not use the following data for averages, fits, limits, etc. • • •

<0.80		95	BOUTEMEUR 90	GAM4	100 $\pi^- p \rightarrow 4\gamma n$	
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$\rho(1405)$ REFERENCES

ABELE	98B	PL B423 175	A. Abele, Adomeit, Amsler+	(Crystal Barrel Collab.)
THOMPSON	97	PRL 79 1630	+Adams+	(E852 Collab.)
PROKOSHKIN	95B	PAN 58 606	+Sadovski	(SERP)
		Translated from YAF 58 662.		
BUGG	94	PR D50 4412	+Anisovich+	(LOQM)
AOYAGI	93	PL B314 246	+Fukui, Hasegawa+	(BKEI Collab.)
BELADIDZE	93	PL 313 276	+Berdnikov, Bitjukov+	(VES Collab.)
BOUTEMEUR	90	Hadron 89 Conf. p 119+	Poulet	(SERP, BELG, LANL, LAPP, PISA, KEK)
ALDE	88B	PL B205 397	+Binon, BoutemEUR+	(SERP, BELG, LANL, LAPP) IGJPC
APEL	81	NP B193 269	+Augenstein, Bertolucci, Donskov+	(SERP, CERN)

OTHER RELATED PAPERS

LACOCK	97	PL B401 308	P. Lacock+	(EDIN, LIVP)
SVEC	97C	PR D56 4355	M. Svec	(MCGI)
PROKOSHKIN	95C	PAN 58 853	+Sadovski	(SERP)
		Translated from YAF 58 921.		
KALASHNIK...	94	ZPHY C62 323	Kalashnikova	(ITEP)
IDDIR	88	PL B205 564	+Le Yaouanc, Ono+	(ORSAY, TOKY)
TUAN	88	PL B213 537	+Ferbel, Dalitz	(HAWA, ROCH, OXFTP)
ZIELINSKI	87	ZPHY C34 255		(ROCH)