

$\rho(1570)$

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

OMITTED FROM SUMMARY TABLE

May be an OZI-violating decay mode of $\rho(1700)$. See the review on "Spectroscopy of Light Meson Resonances."

 $\rho(1570)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
$1570 \pm 36 \pm 62$	54	¹ AUBERT	08S BABR	$10.6 e^+ e^- \rightarrow \phi \pi^0 \gamma$
1585 ± 15		² ACHASOV	20C SND	$1.3-2.0 e^+ e^- \rightarrow K^+ K^- \pi^0$
1480 ± 40		³ BITYUKOV	87 SPEC	$32.5 \pi^- p \rightarrow \phi \pi^0 n$

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

¹ From the fit with two resonances.

² From a fit using a two resonance model in which the mass and width of the other resonance are fixed at the $\rho(1700)$ values from PDG 20.

³ Systematic errors not estimated.

 $\rho(1570)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
$144 \pm 75 \pm 43$	54	⁴ AUBERT	08S BABR	$10.6 e^+ e^- \rightarrow \phi \pi^0 \gamma$
75 ± 30		⁵ ACHASOV	20C SND	$1.3-2.0 e^+ e^- \rightarrow K^+ K^- \pi^0$
130 ± 60		⁶ BITYUKOV	87 SPEC	$32.5 \pi^- p \rightarrow \phi \pi^0 n$

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⁴ From the fit with two resonances.

⁵ From a fit using a two resonance model in which the mass and width of the other resonance are fixed at the $\rho(1700)$ values from PDG 20.

⁶ Systematic errors not estimated.

 $\rho(1570)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $e^+ e^-$	
Γ_2 $\phi \pi$	not seen
Γ_3 $\omega \pi$	

 $\rho(1570)$ $\Gamma(i)\Gamma(e^+ e^-)/\Gamma(\text{total})$

$\Gamma(\phi \pi) \times \Gamma(e^+ e^-)/\Gamma_{\text{total}}$				$\Gamma_2 \Gamma_1/\Gamma$	
VALUE (eV)	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
$3.5 \pm 0.9 \pm 0.3$		54	⁷ AUBERT	08S BABR	$10.6 e^+ e^- \rightarrow \phi \pi^0 \gamma$
< 70	90		⁸ AULCHENKO	87B ND	$e^+ e^- \rightarrow K_S^0 K_L^0 \pi^0$

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

⁷ From the fit with two resonances.

⁸ Using mass and width of BITYUKOV 87.

$\rho(1570)$ BRANCHING RATIOS

$\Gamma(\phi\pi)/\Gamma_{\text{total}}$					Γ_2/Γ
VALUE	DOCUMENT ID	TECN	COMMENT		
not seen	ABELE	97H	CBAR	$\bar{p}p \rightarrow K_L^0 K_S^0 \pi^0 \pi^0$	

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

<0.01 ⁹ DONNACHIE 91 RVUE

⁹ Using data from BISELLO 91B, DOLINSKY 86, and ALBRECHT 87L.

$\Gamma(\phi\pi)/\Gamma(\omega\pi)$					Γ_2/Γ_3
VALUE	CL%	DOCUMENT ID	TECN	COMMENT	
>0.5	95	BITYUKOV	87	SPEC	$32.5 \pi^- p \rightarrow \phi \pi^0 n$

$\rho(1570)$ REFERENCES

ACHASOV	20C	EPJ C80 1139	M.N. Achasov <i>et al.</i>	(SND Collab.)
PDG	20	PTEP 2020 083C01	P.A. Zyla <i>et al.</i>	(PDG Collab.)
AUBERT	08S	PR D77 092002	B. Aubert <i>et al.</i>	(BABAR Collab.)
ABELE	97H	PL B415 280	A. Abele <i>et al.</i>	(Crystal Barrel Collab.)
BISELLO	91B	NPBPS B21 111	D. Bisello	(DM2 Collab.)
DONNACHIE	91	ZPHY C51 689	A. Donnachie, A.B. Clegg	(MCHS, LANC)
ALBRECHT	87L	PL B185 223	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
AULCHENKO	87B	JETPL 45 145	V.M. Aulchenko <i>et al.</i>	(NOVO)
BITYUKOV	87	PL B188 383	S.I. Bityukov <i>et al.</i>	(SERP)
DOLINSKY	86	PL B174 453	S.I. Dolinsky <i>et al.</i>	(NOVO)