

**$\rho(1570)$** 

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

## 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
<b>1570±36±62</b>	54	<sup>1</sup> AUBERT	08S BABR	10.6 $e^+e^- \rightarrow \phi\pi^0\gamma$
•••				We do not use the following data for averages, fits, limits, etc. •••
1614±2		<sup>2</sup> ACHASOV	23A SND	$e^+e^- \rightarrow \omega\pi^0$
1585±15		<sup>3</sup> ACHASOV	20C SND	1.3–2.0 $e^+e^- \rightarrow K^+K^-\pi^0$
1480±40		<sup>4</sup> BITYUKOV	87 SPEC	32.5 $\pi^-p \rightarrow \phi\pi^0n$

<sup>1</sup> From the fit with two resonances.<sup>2</sup> From a vector dominance fit to the Born cross section between 1.05 and 2.0 GeV with  $\rho(770)$ ,  $\rho(1570)$ ,  $\rho(1700)$ ,  $\rho(2150)$ . The fit also uses SND data from the VEPP-2M collider below 1.02 GeV and from LEES 17H and ABLIKIM 21A above 1.5 GeV.<sup>3</sup> 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.<sup>4</sup> Systematic errors not estimated. **$\rho(1570)$  WIDTH**

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>144±75±43</b>	54	<sup>1</sup> AUBERT	08S BABR	10.6 $e^+e^- \rightarrow \phi\pi^0\gamma$
•••				We do not use the following data for averages, fits, limits, etc. •••
492±4		<sup>2</sup> ACHASOV	23A SND	$e^+e^- \rightarrow \omega\pi^0$
75±30		<sup>3</sup> ACHASOV	20C SND	1.3–2.0 $e^+e^- \rightarrow K^+K^-\pi^0$
130±60		<sup>4</sup> BITYUKOV	87 SPEC	32.5 $\pi^-p \rightarrow \phi\pi^0n$

<sup>1</sup> From the fit with two resonances.<sup>2</sup> From a vector dominance fit to the Born cross section between 1.05 and 2.0 GeV with  $\rho(770)$ ,  $\rho(1570)$ ,  $\rho(1700)$ ,  $\rho(2150)$ . The fit also uses SND data from the VEPP-2M collider below 1.02 GeV and from LEES 17H and ABLIKIM 21A above 1.5 GeV.<sup>3</sup> 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.<sup>4</sup> Systematic errors not estimated. **$\rho(1570)$  DECAY MODES**

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $e^+e^-$	seen
$\Gamma_2$ $\phi\pi$	not seen
$\Gamma_3$ $\omega\pi$	

$\rho(1570) \Gamma(i)\Gamma(e^+e^-)/\Gamma(\text{total})$  $\Gamma(\phi\pi) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$   $\Gamma_2\Gamma_1/\Gamma$ 

VALUE (eV)	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<b><math>3.5 \pm 0.9 \pm 0.3</math></b>		54	<sup>1</sup> AUBERT	08S BABR	$10.6 e^+e^- \rightarrow \phi\pi^0\gamma$

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

<70	90		<sup>2</sup> AULCHENKO	87B ND	$e^+e^- \rightarrow K_S^0 K_L^0 \pi^0$
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<sup>1</sup> From the fit with two resonances.<sup>2</sup> Using mass and width of BITYUKOV 87. $\rho(1570)$  BRANCHING RATIOS $\Gamma(\phi\pi)/\Gamma_{\text{total}}$   $\Gamma_2/\Gamma$ 

VALUE	DOCUMENT ID	TECN	COMMENT
<b>not seen</b>	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			<sup>1</sup> DONNACHIE	91 RVUE
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<sup>1</sup> Using data from BISELLO 91B, DOLINSKY 86, and ALBRECHT 87L. $\Gamma(\phi\pi)/\Gamma(\omega\pi)$   $\Gamma_2/\Gamma_3$ 

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	23A	PR D108 092012	M.N. Achasov <i>et al.</i>	(SND Collab.)
ABLIKIM	21A	PL B813 136059	M. Ablikim <i>et al.</i>	(BESIII Collab.)
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.)
LEES	17H	PR D96 092009	J.P. Lees <i>et al.</i>	(BABAR 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)