

# ϕ(2170)

$$I^G(J^{PC}) = 0^-(1^{--})$$

OMITTED FROM SUMMARY TABLE

Observed by AUBERT, BE 06D in the initial-state radiation process

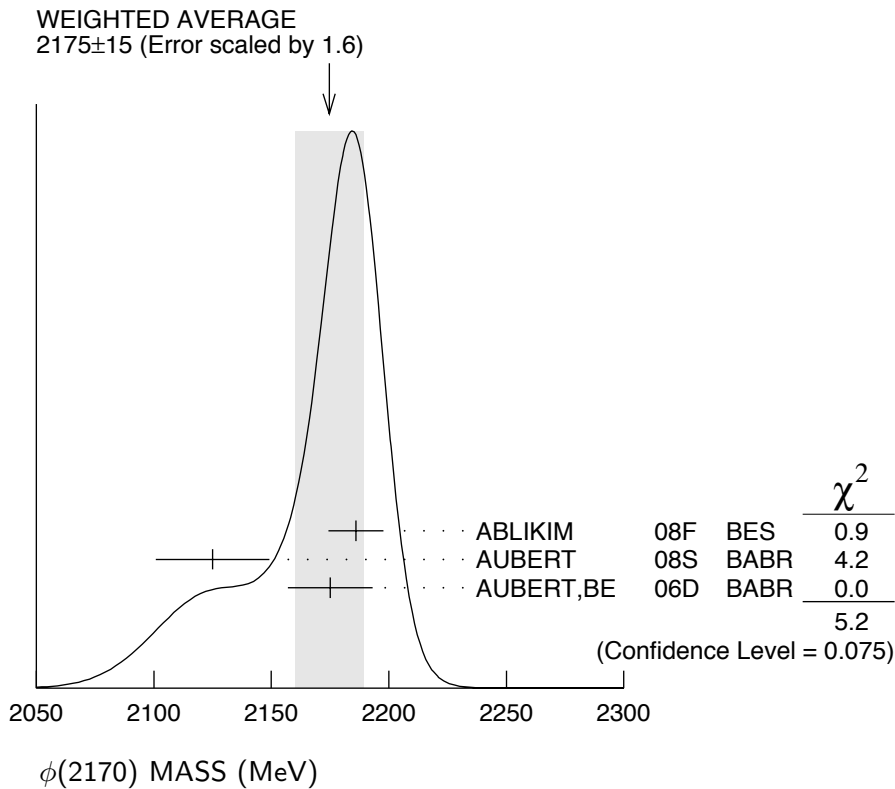
$$e^+ e^- \rightarrow \phi f_0(980) \gamma.$$

## ϕ(2170) MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>2175±15 OUR AVERAGE</b>		Error includes scale factor of 1.6. See the ideogram below.		
2186±10±6	52	ABLIKIM	08F BES	$J/\psi \rightarrow \eta \phi f_0(980)$
2125±22±10	483	AUBERT	08S BABR	$10.6 e^+ e^- \rightarrow \phi \eta \gamma$
2175±10±15	201	<sup>1</sup> AUBERT, BE	06D BABR	$10.6 e^+ e^- \rightarrow K^+ K^- \pi \pi \gamma$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
2192±14	116 ± 95	<sup>2</sup> AUBERT	07AK BABR	$10.6 e^+ e^- \rightarrow K^+ K^- \pi^+ \pi^- \gamma$
2169±20	149 ± 36	<sup>2</sup> AUBERT	07AK BABR	$10.6 e^+ e^- \rightarrow K^+ K^- \pi^0 \pi^0 \gamma$

<sup>1</sup> From the  $\phi f_0(980)$  component.

<sup>2</sup> From the  $K^+ K^- f_0(980)$  component.



## $\phi(2170)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>61±18 OUR AVERAGE</b>				
65±23±17	52	ABLIKIM	08F BES	$J/\psi \rightarrow \eta\phi f_0(980)$
61±50±13	483	AUBERT	08S BABR	$10.6 e^+e^- \rightarrow \phi\eta\gamma$
58±16±20	201	<sup>3</sup> AUBERT,BE	06D BABR	$10.6 e^+e^- \rightarrow K^+K^-\pi\pi\gamma$
••• We do not use the following data for averages, fits, limits, etc. •••				
71±21	116 ± 95	<sup>4</sup> AUBERT	07AK BABR	$10.6 e^+e^- \rightarrow K^+K^-\pi^+\pi^-\gamma$
102±27	149 ± 36	<sup>4</sup> AUBERT	07AK BABR	$10.6 e^+e^- \rightarrow K^+K^-\pi^0\pi^0\gamma$
<sup>3</sup> From the $\phi f_0(980)$ component.				
<sup>4</sup> From the $K^+K^-f_0(980)$ component.				

## $\phi(2170)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1 e^+e^-$	seen
$\Gamma_2 \phi\eta$	
$\Gamma_3 \phi f_0(980)$	seen
$\Gamma_4 K^+K^-\pi^+\pi^-$	
$\Gamma_5 K^+K^-f_0(980) \rightarrow K^+K^-\pi^+\pi^-$	seen
$\Gamma_6 K^+K^-\pi^0\pi^0$	
$\Gamma_7 K^+K^-f_0(980) \rightarrow K^+K^-\pi^0\pi^0$	seen
$\Gamma_8 K^{*0}K^\pm\pi^\mp$	not seen

## $\phi(2170) \Gamma(i)\Gamma(e^+e^-)/\Gamma(\text{total})$

$$\Gamma(\phi\eta) \times \Gamma(e^+e^-)/\Gamma_{\text{total}} \quad \Gamma_2\Gamma_1/\Gamma$$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
••• We do not use the following data for averages, fits, limits, etc. •••				
1.7±0.7±1.3	483	AUBERT	08S BABR	$10.6 e^+e^- \rightarrow \phi\eta\gamma$

$$\Gamma(\phi f_0(980)) \times \Gamma(e^+e^-)/\Gamma_{\text{total}} \quad \Gamma_3\Gamma_1/\Gamma$$

VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>2.5±0.8±0.4</b>	201	<sup>5</sup> AUBERT,BE	06D BABR	$10.6 e^+e^- \rightarrow K^+K^-\pi\pi\gamma$
<sup>5</sup> From the $\phi f_0(980)$ component.				

## $\phi(2170)$ BRANCHING RATIOS

$$\Gamma(K^+K^-f_0(980) \rightarrow K^+K^-\pi^+\pi^-)/\Gamma_{\text{total}} \quad \Gamma_5/\Gamma$$

VALUE	DOCUMENT ID	TECN	COMMENT
<b>seen</b>	AUBERT	07AK BABR	$10.6 e^+e^- \rightarrow K^+K^-\pi^+\pi^-\gamma$

$$\Gamma(K^+K^-f_0(980) \rightarrow K^+K^-\pi^0\pi^0)/\Gamma_{\text{total}} \quad \Gamma_7/\Gamma$$

VALUE	DOCUMENT ID	TECN	COMMENT
<b>seen</b>	AUBERT	07AK BABR	$10.6 e^+e^- \rightarrow K^+K^-\pi^0\pi^0\gamma$

$\Gamma(K^{*0} K^{\pm} \pi^{\mp})/\Gamma_{\text{total}}$			$\Gamma_8/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
not seen	AUBERT	07AK BABR	10.6 GeV $e^+e^-$

### $\phi(2170)$ REFERENCES

ABLIKIM	08F	PRL 100 102003	M. Ablikim <i>et al.</i>	(BES Collab.)
AUBERT	08S	PR D77 092002	B. Aubert <i>et al.</i>	(BABAR Collab.)
AUBERT	07AK	PR D76 012008	B. Aubert <i>et al.</i>	(BABAR Collab.)
AUBERT,BE	06D	PR D74 091103R	B. Aubert <i>et al.</i>	(BABAR Collab.)

### OTHER RELATED PAPERS

DING	07	PL B650 390	G.-J. Ding, M.-L. Yan
DING	07A	PL B657 49	G.-J. Ding, M.-L. Yan