

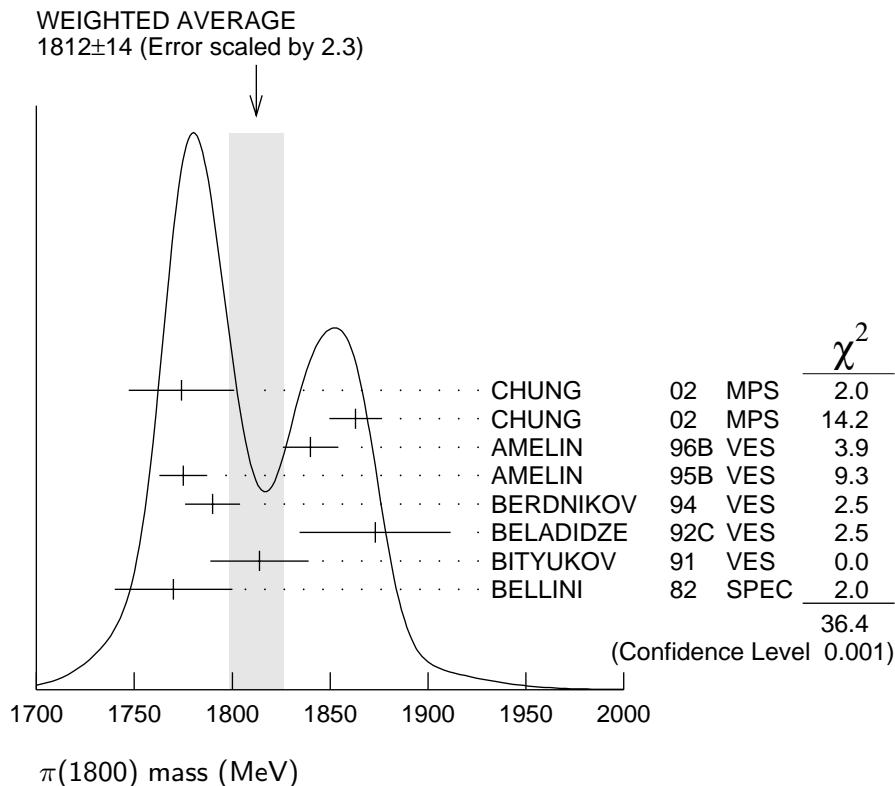
# π(1800)

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

See also minireview under non- $q\bar{q}$  candidates. (See the index for the page number.)

## π(1800) MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
<b>1812±14 OUR AVERAGE</b> Error includes scale factor of 2.3. See the ideogram below.					
1774±18±20		<sup>1</sup> CHUNG	02	E852	18.3 π <sup>-</sup> p → π <sup>+</sup> π <sup>-</sup> π <sup>-</sup> p
1863± 9±10		<sup>2</sup> CHUNG	02	E852	18.3 π <sup>-</sup> p → π <sup>+</sup> π <sup>-</sup> π <sup>-</sup> p
1840±10±10	1200	AMELIN	96B	VES	- 37 π <sup>-</sup> A → ηηπ <sup>-</sup> A
1775± 7±10		<sup>3</sup> AMELIN	95B	VES	- 36 π <sup>-</sup> A → π <sup>+</sup> π <sup>-</sup> π <sup>-</sup> A
1790±14		<sup>4</sup> BERDNIKOV	94	VES	- 37 π <sup>-</sup> A → K <sup>+</sup> K <sup>-</sup> π <sup>-</sup> A
1873±33±20		BELADIDZE	92C	VES	- 36 π <sup>-</sup> Be → π <sup>-</sup> η' η Be
1814±10±23	426± 57	BITYUKOV	91	VES	- 36 π <sup>-</sup> C → π <sup>-</sup> ηηC
1770±30	1100	BELLINI	82	SPEC	- 40 π <sup>-</sup> A → 3π A
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
1737± 5±15		AMELIN	99	VES	37 π <sup>-</sup> A → ω π <sup>-</sup> π <sup>0</sup> A*



<sup>1</sup>In the  $f_0(980)\pi$  wave.

<sup>2</sup>In the  $f_0(600)\pi$  wave.

<sup>3</sup>From a fit to  $J^{PC} = 0^{-+} f_0(980)\pi, f_0(1370)\pi$  waves.

<sup>4</sup>From a fit to  $J^{PC} = 0^{-+} K_0^*(1430)K^-, f_0(980)\pi^-$  waves.

### $\pi(1800)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
<b>207±13 OUR AVERAGE</b>					
223±48±50		<sup>7</sup> CHUNG	02	E852	18.3 $\pi^- p \rightarrow \pi^+ \pi^- \pi^- p$
191±21±20		<sup>8</sup> CHUNG	02	E852	18.3 $\pi^- p \rightarrow \pi^+ \pi^- \pi^- p$
210±30±30	1200	AMELIN	96B	VES	— 37 $\pi^- A \rightarrow \eta\eta\pi^- A$
190±15±15		<sup>5</sup> AMELIN	95B	VES	— 36 $\pi^- A \rightarrow \pi^+ \pi^- \pi^- A$
210±70		<sup>6</sup> BERDNIKOV	94	VES	— 37 $\pi^- A \rightarrow K^+ K^- \pi^- A$
225±35±20		BELADIDZE	92C	VES	— 36 $\pi^- Be \rightarrow \pi^- \eta' \eta Be$
205±18±32	426±57	BITYUKOV	91	VES	— 36 $\pi^- C \rightarrow \pi^- \eta\eta C$
310±50	1100	BELLINI	82	SPEC	— 40 $\pi^- A \rightarrow 3\pi A$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
259±19±6		AMELIN	99	VES	37 $\pi^- A \rightarrow \omega \pi^- \pi^0 A^*$

<sup>5</sup>From a fit to  $J^{PC} = 0^{-+} f_0(980)\pi, f_0(1370)\pi$  waves.

<sup>6</sup>From a fit to  $J^{PC} = 0^{-+} K_0^*(1430)K^-, f_0(980)\pi^-$  waves.

<sup>7</sup>In the  $f_0(980)\pi$  wave.

<sup>8</sup>In the  $f_0(600)\pi$  wave.

### $\pi(1800)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $\pi^+ \pi^- \pi^-$	seen
$\Gamma_2$ $f_0(600)\pi^-$	seen
$\Gamma_3$ $f_0(980)\pi^-$	seen
$\Gamma_4$ $f_0(1370)\pi^-$	seen
$\Gamma_5$ $f_0(1500)\pi^-$	not seen
$\Gamma_6$ $\rho\pi^-$	not seen
$\Gamma_7$ $\eta\eta\pi^-$	seen
$\Gamma_8$ $a_0(980)\eta$	seen
$\Gamma_9$ $f_0(1500)\pi^-$	seen
$\Gamma_{10}$ $\eta\eta'(958)\pi^-$	seen
$\Gamma_{11}$ $K_0^*(1430)K^-$	seen
$\Gamma_{12}$ $K^*(892)K^-$	not seen

## $\pi(1800)$ BRANCHING RATIOS

$\Gamma(f_0(980)\pi^-)/\Gamma(f_0(600)\pi^-)$					$\Gamma_3/\Gamma_2$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>	
<b><math>0.44 \pm 0.08 \pm 0.38</math></b>	<sup>10</sup> CHUNG	02	E852	18.3 $\pi^- p \rightarrow \pi^+ \pi^- \pi^- p$	

$\Gamma(f_0(980)\pi^-)/\Gamma(f_0(1370)\pi^-)$					$\Gamma_3/\Gamma_4$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>	
<b><math>1.7 \pm 1.3</math></b>	AMELIN	95B	VES	— 36 $\pi^- A \rightarrow \pi^+ \pi^- \pi^- A$	

$\Gamma(f_0(1370)\pi^-)/\Gamma_{\text{total}}$					$\Gamma_4/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>	
<b>seen</b>	BELLINI	82	SPEC	— 40 $\pi^- A \rightarrow 3\pi A$	

$\Gamma(f_0(1500)\pi^-)/\Gamma_{\text{total}}$					$\Gamma_5/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>	

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

not seen	CHUNG	02	E852	18.3 $\pi^- p \rightarrow \pi^+ \pi^- \pi^- p$	
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$\Gamma(\eta\eta\pi^-)/\Gamma(\pi^+\pi^-\pi^-)$					$\Gamma_7/\Gamma_1$
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
<b><math>0.5 \pm 0.1</math></b>	1200	AMELIN	96B	VES	— 37 $\pi^- A \rightarrow \eta\eta\pi^- A$

$\Gamma(f_0(1500)\pi^-)/\Gamma(a_0(980)\eta)$					$\Gamma_9/\Gamma_8$
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
<b><math>0.08 \pm 0.03</math></b>	1200	<sup>9</sup> AMELIN	96B	VES	— 37 $\pi^- A \rightarrow \eta\eta\pi^- A$

<sup>9</sup> Assuming that  $f_0(1500)$  decays only to  $\eta\eta$  and  $a_0(980)$  decays only to  $\eta\pi$ .

$\Gamma(\eta\eta'(958)\pi^-)/\Gamma(\eta\eta\pi^-)$					$\Gamma_{10}/\Gamma_7$
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
<b><math>0.29 \pm 0.06</math> OUR AVERAGE</b>		BELADIDZE	92C	VES	— 36 $\pi^- \text{Be} \rightarrow \pi^- \eta' \eta \text{Be}$
0.29 $\pm$ 0.07		BITYUKOV	91	VES	— 36 $\pi^- \text{C} \rightarrow \pi^- \eta \eta \text{C}$
0.3 $\pm$ 0.1	426 $\pm$ 57				

$\Gamma(K_0^*(1430)K^-)/\Gamma_{\text{total}}$					$\Gamma_{11}/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>	
<b>seen</b>	BERDNIKOV	94	VES	— 37 $\pi^- A \rightarrow K^+ K^- \pi^- A$	

$\Gamma(K^*(892)K^-)/\Gamma_{\text{total}}$					$\Gamma_{12}/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>	

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

not seen	BERDNIKOV	94	VES	— 37 $\pi^- A \rightarrow K^+ K^- \pi^- A$	
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$\Gamma(\rho\pi^-)/\Gamma(f_0(980)\pi^-)$					$\Gamma_6/\Gamma_3$
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
<0.25		CHUNG	02 E852		18.3 $\pi^- p \rightarrow \pi^+ \pi^- \pi^- p$
<0.14	90	AMELIN	95B VES	—	36 $\pi^- A \rightarrow \pi^+ \pi^- \pi^- A$

$\Gamma(\rho\pi^-)/\Gamma_{\text{total}}$					$\Gamma_6/\Gamma$
<u>VALUE</u>		<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
<b>not seen</b>		BELLINI	82 SPEC	—	40 $\pi^- A \rightarrow 3\pi A$

<sup>10</sup> Assuming that  $f_0(980)$  decays only to  $\pi\pi$ .

### $\pi(1800)$ REFERENCES

CHUNG	02	PR D65 072001	S.U. Chung <i>et al.</i>	(BNL E852 Collab.)
AMELIN	99	PAN 62 445	D.V. Amelin <i>et al.</i>	(VES Collab.)
		Translated from YAF 62 487.		
AMELIN	96B	PAN 59 976	D.V. Amelin <i>et al.</i>	(SERP, TBIL) IGJPC
		Translated from YAF 59 1021.		
AMELIN	95B	PL B356 595	D.V. Amelin <i>et al.</i>	(SERP, TBIL)
BERDNIKOV	94	PL B337 219	E.B. Berdnikov <i>et al.</i>	(SERP, TBIL)
BELADIDZE	92C	SJNP 55 1535	G.M. Beladidze, S.I. Bityukov, G.V. Borisov	(SERP+)
		Translated from YAF 55 2748.		
BITYUKOV	91	PL B268 137	S.I. Bityukov <i>et al.</i>	(SERP, TBIL)
BELLINI	82	PRL 48 1697	G. Bellini <i>et al.</i>	(MILA, BGNA, JINR)

### OTHER RELATED PAPERS

ZAIMIDOROGA	99	PAN 30 1	O.A. Zaimidoroga	
		Translated from SJPN 30 5.		
BORISOV	92	SJNP 55 1441	G.V. Borisov, S.S. Gershtein, A.M. Zaitsev	(SERP)
		Translated from YAF 55 2583.		