$\pi(1800)$

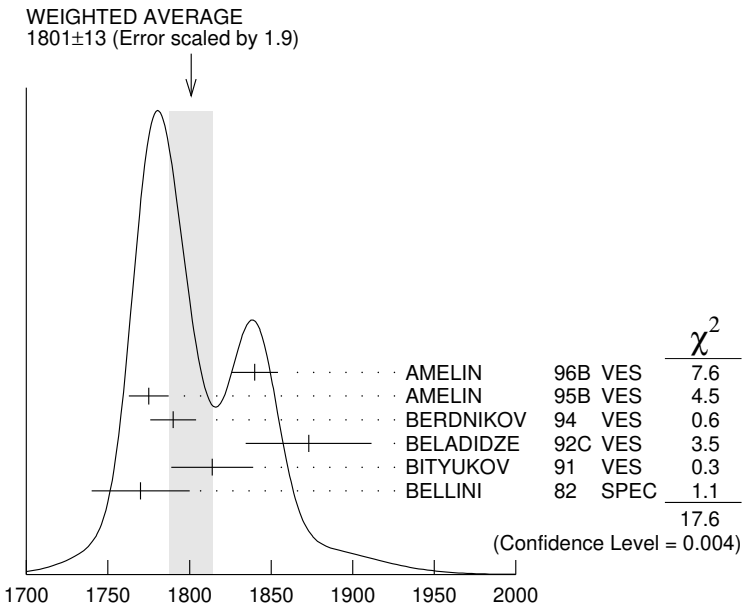
$I^G(J^{PC}) = 1^-(0^{-+})$

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

$\pi(1800)$ MASS

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1801±13 OUR AVERAGE Error includes scale factor of 1.9. See the ideogram below.						
1840±10±10	1200	AMELIN	96B	VES	–	37 $\pi^- A \to \eta\eta\pi^- A$
1775± 7±10		[1] AMELIN	95B	VES	–	36 $\pi^- A \to \pi^+\pi^-\pi^- A$
1790±14		[2] BERDNIKOV	94	VES	–	37 $\pi^- A \to K^+K^-\pi^- A$
1873±33±20		BELADIDZE	92C	VES	–	36 π^- Be $\to \pi^-\eta'\eta$ Be
1814±10±23	426± 57	BITYUKOV	91	VES	–	36 π^- C $\to \pi^-\eta\eta$ C
1770±30	1100	BELLINI	82	SPEC	–	40 π^- A $\to$ 3π A
• • • We do not use the following data for averages, fits, limits, etc. • • •						
1737± 5±15		AMELIN	99	VES		37 $\pi^- A \to \omega\pi^-\pi^0 A^*$

[1] From a fit to $J^{PC} = 0^{-+}$ $f_0(980)\pi$, $f_0(1370)\pi$ waves.
[2] From a fit to $J^{PC} = 0^{-+}$ $K_0^*(1430)K^-$ and $f_0(980)\pi^-$ waves.



$\pi(1800)$ WIDTH

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
210±15 OUR AVERAGE						
210±30±30	1200	AMELIN	96B	VES	–	37 $\pi^- A \to \eta\eta\pi^- A$
190±15±15		[3] AMELIN	95B	VES	–	36 $\pi^- A \to \pi^+\pi^-\pi^- A$
210±70		[4] BERDNIKOV	94	VES	–	37 $\pi^- A \to K^+K^-\pi^- A$
225±35±20		BELADIDZE	92C	VES	–	36 π^- Be $\to \pi^-\eta'\eta$ Be
205±18±32	426± 57	BITYUKOV	91	VES	–	36 π^- C $\to \pi^-\eta\eta$ C
310±50	1100	BELLINI	82	SPEC	–	40 π^- A $\to$ 3π A
• • • We do not use the following data for averages, fits, limits, etc. • • •						
259±19± 6		AMELIN	99	VES		37 $\pi^- A \to \omega\pi^-\pi^0 A^*$

[3] From a fit to $J^{PC} = 0^{-+}$ $f_0(980)\pi$, $f_0(1370)\pi$ waves.
[4] From a fit to $J^{PC} = 0^{-+}$ $K_0^*(1430)K^-$ and $f_0(980)\pi^-$ waves.

$\pi(1800)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\pi^+\pi^-\pi^-$	seen
Γ_2	$f_0(980)\pi^-$	seen
Γ_3	$f_0(1370)\pi^-$	seen
Γ_4	$\rho\pi^-$	not seen
Γ_5	$\eta\eta\pi^-$	seen
Γ_6	$a_0(980)\eta$	seen
Γ_7	$f_0(1500)\pi^-$	seen
Γ_8	$\eta\eta'(958)\pi^-$	seen
Γ_9	$K_0^*(1430)K^-$	seen
Γ_{10}	$K^*(892)K^-$	not seen

$\pi(1800)$ BRANCHING RATIOS

$\Gamma(f_0(980)\pi^-)/\Gamma(f_0(1370)\pi^-)$ Γ_2/Γ_3

VALUE	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
1.7±1.3	AMELIN	95B	VES	–	36 $\pi^- A \to \pi^+\pi^-\pi^- A$

$\Gamma(f_0(1370)\pi^-)/\Gamma_{total}$ Γ_3/Γ

VALUE	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
seen	BELLINI	82	SPEC	–	40 π^- A $\to$ 3π A

$\Gamma(\eta\eta\pi^-)/\Gamma(\pi^+\pi^-\pi^-)$ Γ_5/Γ_1

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
0.5 ±0.1	1200	AMELIN	96B	VES	–	37 $\pi^- A \to \eta\eta\pi^- A$

$\Gamma(f_0(1500)\pi^-)/\Gamma(a_0(980)\eta)$ Γ_7/Γ_6

VALUE	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
0.08 ±0.03	1200	[5] AMELIN	96B	VES	–	37 $\pi^- A \to \eta\eta\pi^- A$

[5] Assuming that $f_0(1500)$ decays only to $\eta\eta$ and $a_0(980)$ decays only to $\eta\pi$.

$\Gamma(\eta\eta'(958)\pi^-)/\Gamma(\eta\eta\pi^-)$ Γ_8/Γ_5

VALUE	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
0.29±0.06 OUR AVERAGE						
0.29±0.07		BELADIDZE	92C	VES	–	36 π^- Be $\to$ $\pi^-\eta'\eta$ Be
0.3 ±0.1	426± 57	BITYUKOV	91	VES	–	36 π^- C $\to$ $\pi^-\eta\eta$ C

$\Gamma(K_0^*(1430)K^-)/\Gamma_{total}$ Γ_9/Γ

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
seen	BERDNIKOV	94	VES	–	37 $\pi^- A \to K^+K^-\pi^- A$

$\Gamma(K^*(892)K^-)/\Gamma_{total}$ Γ_{10}/Γ

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
not seen	BERDNIKOV	94	VES	–	37 $\pi^- A \to K^+K^-\pi^- A$

$\Gamma(\rho\pi^-)/\Gamma(f_0(980)\pi^-)$ Γ_4/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.14	90	AMELIN	95B	VES	–	36 $\pi^- A \to \pi^+\pi^-\pi^- A$

$\Gamma(\rho\pi^-)/\Gamma_{total}$ Γ_4/Γ

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
not seen	BELLINI	82	SPEC	–	40 π^- A $\to$ 3π A

$\pi(1800)$ REFERENCES

AMELIN	99	PAN 62 445	D.V. Amelin *et al.*	(VES Collab.)
		Translated from YAF 62 487.		
AMELIN	96B	PAN 59 976	D.V. Amelin *et al.*	(SERP, TBIL) IGJPC
		Translated from YAF 59 1021.		
AMELIN	95B	PL B356 595	D.V. Amelin *et al.*	(SERP, TBIL)
BERDNIKOV	94	PL B337 219	E.B. Berdnikov *et al.*	(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 *et al.*	(SERP, TBIL)
BELLINI	82	PRL 48 1697	G. Bellini *et al.*	(MILA, BGNA, JINR)

OTHER RELATED PAPERS

LANDSBERG	99	SPU 42 871	L.G. Landsberg	
		Translated from UFN 42 961.		
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.		