NODE=M075

$\pi(1800)$

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

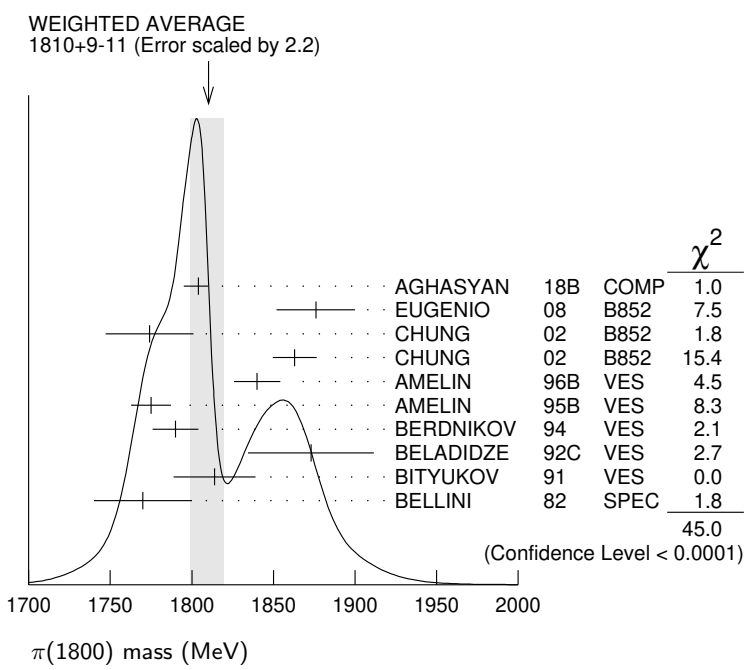
See the review on "Spectroscopy of Light Meson Resonances." NODE=M075

$\pi(1800)$ MASS

NODE=M075M

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
1810^{+9}_{-11} OUR AVERAGE Error includes scale factor of 2.2. See the ideogram below.						
1804^{+6}_{-9}	46M	[1] AGHASYAN	18B	COMP		190 $\pi^- p \to \pi^- \pi^+ \pi^- p$
$1876 \pm 18 \pm 16$	4k	[2] EUGENIO	08	B852	–	18 $\pi^- p \to \eta\eta\pi^- p$
$1774 \pm 18 \pm 20$		[3] CHUNG	02	B852		18.3 $\pi^- p \to \pi^+ \pi^- \pi^- p$
$1863 \pm 9 \pm 10$		[4] CHUNG	02	B852		18.3 $\pi^- p \to \pi^+ \pi^- \pi^- p$ OCCUR=2
$1840 \pm 10 \pm 10$	1.2k	AMELIN	96B	VES	–	37 $\pi^- A \to \eta\eta\pi^- A$
$1775 \pm 7 \pm 10$		[5] AMELIN	95B	VES	–	36 $\pi^- A \to \pi^+ \pi^- \pi^- A$
1790 ± 14		[6] BERDNIKOV	94	VES	–	37 $\pi^- A \to K^+ K^- \pi^- A$
$1873 \pm 33 \pm 20$		BELADIDZE	92C	VES	–	36 π^- Be $\to \pi^- \eta' \eta$ Be
$1814 \pm 10 \pm 23$	426	BITYUKOV	91	VES	–	36 π^- C $\to \pi^- \eta\eta$ C
1770 ± 30	1.1k	BELLINI	82	SPEC	–	40 π^- A $\to 3\pi$ A
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$1785 \pm 9^{+12}_{-6}$	420k	[7] ALEKSEEV	10	COMP		190 $\pi^- Pb \to \pi^- \pi^- \pi^+ Pb'$
$1737 \pm 5 \pm 15$		AMELIN	99	VES		37 $\pi^- A \to \omega\pi^- \pi^0 A^*$

[1] Statistical error negligible. NODE=M075M;LINKAGE=B
[2] From a single-pole fit. NODE=M075M;LINKAGE=SP
[3] In the $f_0(980)\pi$ wave. NODE=M075M;LINKAGE=C1
[4] In the $f_0(500)\pi$ wave. NODE=M075M;LINKAGE=C2
[5] From a fit to $J^{PC} = 0^{-+}$ $f_0(980)\pi$, $f_0(1370)\pi$ waves. NODE=M075M;LINKAGE=AX
[6] From a fit to $J^{PC} = 0^{-+}$ $K_0^*(1430)K^-$ and $f_0(980)\pi^-$ waves. NODE=M075M;LINKAGE=A
[7] Superseded by AGHASYAN 2018B. NODE=M075M;LINKAGE=C



$\pi(1800)$ WIDTH

NODE=M075W

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT	
							NODE=M075W
215^{+7}_{-8} OUR AVERAGE							
220^{+8}_{-11}	46M	[8] AGHASYAN	18B	COMP		190 $\pi^- p \to \pi^- \pi^+ \pi^- p$	
$221 \pm 26 \pm 38$	4k	[9] EUGENIO	08	B852	–	18 $\pi^- p \to \eta\eta\pi^- p$	
$223 \pm 48 \pm 50$		[10] CHUNG	02	B852		18.3 $\pi^- p \to \pi^+ \pi^- \pi^- p$	
$191 \pm 21 \pm 20$		[11] CHUNG	02	B852		18.3 $\pi^- p \to \pi^+ \pi^- \pi^- p$	OCCUR=2
$210 \pm 30 \pm 30$	1.2k	AMELIN	96B	VES	–	37 $\pi^- A \to \eta\eta\pi^- A$	
$190 \pm 15 \pm 15$		[12] AMELIN	95B	VES	–	36 $\pi^- A \to \pi^+ \pi^- \pi^- A$	
210 ± 70		[13] BERDNIKOV	94	VES	–	37 $\pi^- A \to K^+ K^- \pi^- A$	
$225 \pm 35 \pm 20$		BELADIDZE	92C	VES	–	36 π^- Be $\to \pi^- \eta' \eta$ Be	
$205 \pm 18 \pm 32$	426	BITYUKOV	91	VES	–	36 π^- C $\to \pi^- \eta\eta$ C	
310 ± 50	1.1k	BELLINI	82	SPEC	–	40 π^- A $\to 3\pi$ A	
• • • We do not use the following data for averages, fits, limits, etc. • • •							
$208 \pm 22^{+21}_{-37}$	420k	[14] ALEKSEEV	10	COMP		190 $\pi^- Pb \to \pi^- \pi^- \pi^+ Pb'$	
$259 \pm 19 \pm 6$		AMELIN	99	VES		37 $\pi^- A \to \omega\pi^- \pi^0 A^*$	

[8] Statistical error negligible. NODE=M075W;LINKAGE=B
[9] From a single-pole fit. NODE=M075W;LINKAGE=SP
[10] In the $f_0(980)\pi$ wave. NODE=M075W;LINKAGE=C1
[11] In the $f_0(500)\pi$ wave. NODE=M075W;LINKAGE=C2
[12] From a fit to $J^{PC} = 0^{-+}$ $f_0(980)\pi$, $f_0(1370)\pi$ waves. NODE=M075W;LINKAGE=AX
[13] From a fit to $J^{PC} = 0^{-+}$ $K_0^*(1430)K^-$ and $f_0(980)\pi^-$ waves. NODE=M075W;LINKAGE=A
[14] Superseded by AGHASYAN 2018B. NODE=M075W;LINKAGE=C

$\pi(1800)$ DECAY MODES

NODE=M075215;NODE=M075

	Mode	Fraction (Γ_i/Γ)	
Γ_1	$\pi^+ \pi^- \pi^-$	seen	DESIG=10;OUR EST;→ UNCHECKED ←
Γ_2	$f_0(500)\pi^-$	seen	DESIG=11;OUR EST;→ UNCHECKED ←
Γ_3	$f_0(980)\pi^-$	seen	DESIG=3;OUR EST;→ UNCHECKED ←
Γ_4	$f_0(1370)\pi^-$	seen	DESIG=1
Γ_5	$f_0(1500)\pi^-$	not seen	DESIG=12
Γ_6	$\rho\pi^-$	not seen	DESIG=2
Γ_7	$\eta\eta\pi^-$	seen	DESIG=7;OUR EST;→ UNCHECKED ←
Γ_8	$a_0(980)\eta$	seen	DESIG=5;OUR EST;→ UNCHECKED ←
Γ_9	$a_2(1320)\eta$	not seen	DESIG=13
Γ_{10}	$f_2(1270)\pi$	not seen	DESIG=14
Γ_{11}	$f_0(1370)\pi^-$	not seen	DESIG=15
Γ_{12}	$f_0(1500)\pi^-$	seen	DESIG=6;OUR EST;→ UNCHECKED ←
Γ_{13}	$\eta\eta'(958)\pi^-$	seen	DESIG=8;OUR EST;→ UNCHECKED ←
Γ_{14}	$K_0^*(1430)K^-$	seen	DESIG=4
Γ_{15}	$K^*(892)K^-$	not seen	DESIG=9

$\pi(1800)$ BRANCHING RATIOS

NODE=M075220

$\Gamma(f_0(980)\pi^-)/\Gamma(f_0(500)\pi^-)$ — Γ_3/Γ_2

NODE=M075R11
NODE=M075R11

VALUE	DOCUMENT ID		TECN	COMMENT
0.44±0.08±0.38	[15] CHUNG	02	B852	18.3 $\pi^- p \to \pi^+ \pi^- \pi^- p$

$\Gamma(f_0(980)\pi^-)/\Gamma(f_0(1370)\pi^-)$ — Γ_3/Γ_4

NODE=M075R5
NODE=M075R5

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.7±1.3	[16] AMELIN	95B	VES	–	36 $\pi^- A \to \pi^+ \pi^- \pi^- A$

$\Gamma(f_0(1370)\pi^-)/\Gamma_{total}$ — Γ_4/Γ

NODE=M075R1
NODE=M075R1

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

$\Gamma(f_0(1500)\pi^-)/\Gamma_{total}$ — Γ_5/Γ

NODE=M075R12
NODE=M075R12

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	CHUNG	02	B852	18.3 $\pi^- p \to \pi^+\pi^-\pi^- p$

$\Gamma(\rho\pi^-)/\Gamma_{total}$ — Γ_6/Γ

NODE=M075R2
NODE=M075R2

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

$\Gamma(\rho\pi^-)/\Gamma(f_0(980)\pi^-)$ — Γ_6/Γ_3

NODE=M075R6
NODE=M075R6

VALUE	CL%	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.25		CHUNG	02	B852		18.3 $\pi^- p \to \pi^+\pi^-\pi^- p$
<0.14	90	AMELIN	95B	VES	–	36 $\pi^- A \to \pi^+\pi^-\pi^- A$

$\Gamma(\eta\eta\pi^-)/\Gamma(\pi^+\pi^-\pi^-)$ — Γ_7/Γ_1

NODE=M075R8
NODE=M075R8

VALUE	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •						
0.5±0.1	1200	[16] AMELIN	96B	VES	–	37 $\pi^- A \to \eta\eta\pi^- A$

$\Gamma(a_2(1320)\eta)/\Gamma_{total}$ — Γ_9/Γ

NODE=M075R13
NODE=M075R13

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	EUGENIO	08	B852	18 $\pi^- p \to \eta\eta\pi^- p$

$\Gamma(f_2(1270)\pi)/\Gamma_{total}$ — Γ_{10}/Γ

NODE=M075R14
NODE=M075R14

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	EUGENIO	08	B852	18 $\pi^- p \to \eta\eta\pi^- p$

$\Gamma(f_0(1370)\pi^-)/\Gamma_{total}$ — Γ_{11}/Γ

NODE=M075R15
NODE=M075R15

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	EUGENIO	08	B852	18 $\pi^- p \to \eta\eta\pi^- p$

$\Gamma(f_0(1500)\pi^-)/\Gamma(a_0(980)\eta)$ — Γ_{12}/Γ_8

NODE=M075R7
NODE=M075R7

VALUE	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •						
0.48 ±0.17	4k	[16,17] EUGENIO	08	B852	–	18 $\pi^- p \to \eta\eta\pi^- p$
$0.030^{+0.014}_{-0.011}$		[16] ANISOVICH	01B	SPEC	0	0.6–1.94 $p\overline{p} \to \eta\eta\pi^0\pi^0$
0.08 ±0.03	1200	[16,18] AMELIN	96B	VES	–	37 $\pi^- A \to \eta\eta\pi^- A$

$\Gamma(\eta\eta'(958)\pi^-)/\Gamma(\eta\eta\pi^-)$ — Γ_{13}/Γ_7

NODE=M075R10
NODE=M075R10

VALUE	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •						
0.29±0.07		[16] BELADIDZE	92C	VES	–	36 π^- Be $\to \pi^-\eta'\eta$ Be
0.3 ±0.1	426 ± 57	[16] BITYUKOV	91	VES	–	36 π^- C $\to \pi^-\eta\eta$ C

$\Gamma(K_0^*(1430)K^-)/\Gamma_{total}$ — Γ_{14}/Γ

NODE=M075R4
NODE=M075R4

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_{15}/Γ

NODE=M075R9
NODE=M075R9

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
not seen	BERDNIKOV	94	VES	–	37 $\pi^- A \to K^+K^-\pi^- A$

[15] Assuming that $f_0(980)$ decays only to $\pi\pi$. NODE=M075R;LINKAGE=CK
[16] Systematic errors not estimated. NODE=M075R5;LINKAGE=NS
[17] From a single-pole fit. NODE=M075R7;LINKAGE=SP
[18] Assuming that $f_0(1500)$ decays only to $\eta\eta$ and $a_0(980)$ decays only to $\eta\pi$. NODE=M075R7;LINKAGE=A

$\pi(1800)$ REFERENCES

NODE=M075

AGHASYAN	18B	PR D98 092003	M. Aghasyan *et al.*	(COMPASS Collab.)	REFID=59471
ALEKSEEV	10	PRL 104 241803	M.G. Alekseev *et al.*	(COMPASS Collab.)	REFID=53356
EUGENIO	08	PL B660 466	P. Eugenio *et al.*	(BNL E852 Collab.)	REFID=52160
CHUNG	02	PR D65 072001	S.U. Chung *et al.*	(BNL E852 Collab.)	REFID=48837
ANISOVICH	01B	PL B500 222	A.V. Anisovich *et al.*		REFID=48318
AMELIN	99	PAN 62 445	D.V. Amelin *et al.*	(VES Collab.)	REFID=46910
		Translated from YAF 62 487.			
AMELIN	96B	PAN 59 976	D.V. Amelin *et al.*	(SERP, TBIL) IGJPC	REFID=44725
		Translated from YAF 59 1021.			
AMELIN	95B	PL B356 595	D.V. Amelin *et al.*	(SERP, TBIL)	REFID=44433
BERDNIKOV	94	PL B337 219	E.B. Berdnikov *et al.*	(SERP, TBIL)	REFID=44073
BELADIDZE	92C	SJNP 55 1535	G.M. Beladidze, S.I. Bityukov, G.V. Borisov	(SERP+)	REFID=43175
		Translated from YAF 55 2748.			
BITYUKOV	91	PL B268 137	S.I. Bityukov *et al.*	(SERP, TBIL)	REFID=41749
BELLINI	82	PRL 48 1697	G. Bellini *et al.*	(MILA, BGNA, JINR)	REFID=21134