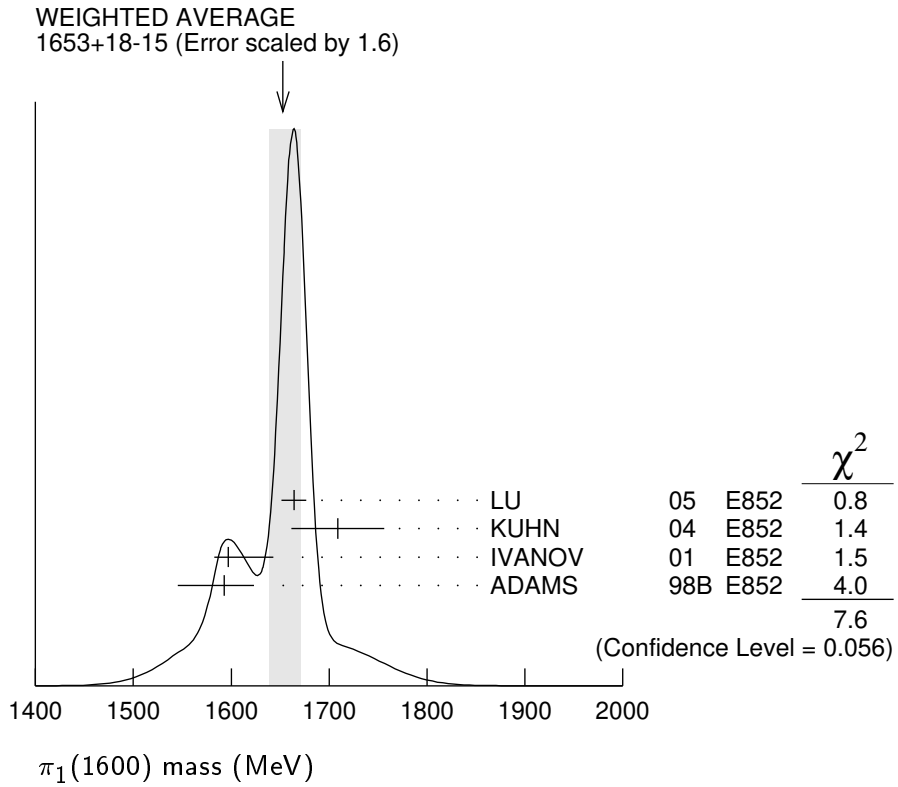
$\pi_1(1600)$

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

$\pi_1(1600)$ MASS

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1653^{+18}_{-15} OUR AVERAGE		Error includes scale factor of 1.6. See the ideogram below.			
$1664 \pm 8 \pm 10$	145k	[1] LU	05	E852	$18\ \pi^- p \to\ \omega\pi^-\pi^0 p$
$1709 \pm 24 \pm 41$	69k	[2] KUHN	04	E852	$18\ \pi^- p \to\ \eta\pi^+\pi^-\pi^- p$
$1597 \pm 10^{+45}_{-10}$		[2] IVANOV	01	E852	$18\ \pi^- p \to\ \eta'\pi^- p$
$1593 \pm 8^{+29}_{-47}$		[2] ADAMS	98B	E852	$18.3\ \pi^- p \to\ \pi^+\pi^-\pi^- p$

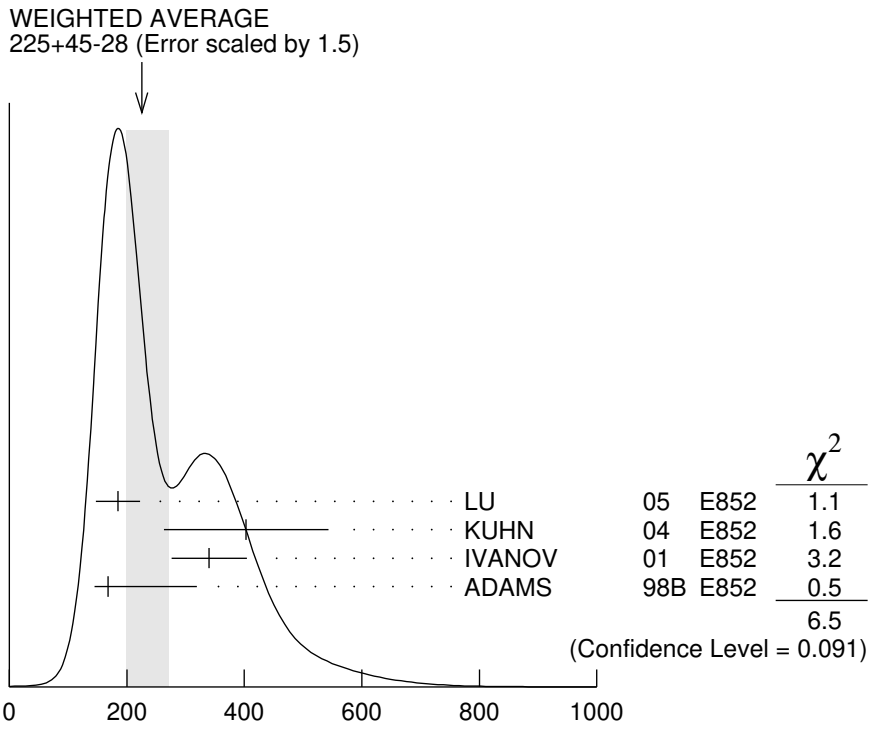
[1] May be a different state: natural and unnatural parity exchanges.
[2] Natural parity exchange.



$\pi_1(1600)$ WIDTH

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
225^{+45}_{-28} OUR AVERAGE		Error includes scale factor of 1.5. See the ideogram below.			
$185 \pm 25 \pm 28$	145k	[3] LU	05	E852	$18\ \pi^- p \to\ \omega\pi^-\pi^0 p$
$403 \pm 80 \pm 115$	69k	[4] KUHN	04	E852	$18\ \pi^- p \to\ \eta\pi^+\pi^-\pi^- p$
$340 \pm 40 \pm 50$		[4] IVANOV	01	E852	$18\ \pi^- p \to\ \eta'\pi^- p$
$168 \pm 20^{+150}_{-12}$		[4] ADAMS	98B	E852	$18.3\ \pi^- p \to\ \pi^+\pi^-\pi^- p$

[3] May be a different state: natural and unnatural parity exchanges.
[4] Natural parity exchange.



$\pi_1(1600)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\pi\pi\pi$	seen
Γ_2	$\rho^0\pi^-$	seen
Γ_3	$f_2(1270)\pi^-$	not seen
Γ_4	$b_1(1235)\pi$	seen
Γ_5	$\eta'(958)\pi^-$	seen
Γ_6	$f_1(1285)\pi$	seen

$\pi_1(1600)$ BRANCHING RATIOS

$\Gamma(\rho^0\pi^-)/\Gamma_{total}$ Γ_2/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[5] ADAMS	98B	E852	18.3 $\pi^- p \to \pi^+\pi^-\pi^- p$

$\Gamma(\eta'(958)\pi^-)/\Gamma_{total}$ Γ_5/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
seen	IVANOV	01	E852	18 $\pi^- p \to \eta'\pi^- p$

$\Gamma(f_2(1270)\pi^-)/\Gamma_{total}$ Γ_3/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	CHUNG	02	E852	18.3 $\pi^- p \rightarrow \pi^+\pi^-\pi^- p$

$\Gamma(b_1(1235)\pi)/\Gamma_{total}$ Γ_4/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
seen	35280	[6] BAKER	03	SPEC	$\overline{p}p \rightarrow \omega\pi^+\pi^-\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
seen	145k	LU	05	E852	18 $\pi^- p \rightarrow \omega\pi^-\pi^0 p$

$\Gamma(f_1(1285)\pi)/\Gamma(\eta'(958)\pi^-)$ Γ_6/Γ_5

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
3.80±0.78	69k	[7] KUHN	04	E852	18 $\pi^- p \rightarrow \eta\pi^+\pi^-\pi^- p$

[5] Natural parity exchange.
[6] $B((b_1\pi)_{D-wave})/B((b_1\pi)_{S\text{-wave}})=0.3 \pm 0.1$.
[7] Using $\eta'(958)\pi$ data from IVANOV 01.

$\pi_1(1600)$ REFERENCES

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