$\pi_1(1600)$

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

$\pi_1(1600)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
1662^{+15}_{-11} **OUR AVERAGE**		Error includes scale factor of 1.2.			
$1664\pm 8\pm10$	145k	[1] LU	05	B852	18 $\pi^- p \to \omega\pi^-\pi^0 p$
$1709\pm24\pm41$	69k	[2] KUHN	04	B852	18 $\pi^- p \to \eta\pi^+\pi^-\pi^- p$
$1597\pm10^{+45}_{-10}$		[2] IVANOV	01	B852	18 $\pi^- p \to \eta'\pi^- p$

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

$1593\pm 8^{+29}_{-47}$		[2,3] ADAMS	98B	B852	18.3 $\pi^- p \to \pi^+\pi^-\pi^- p$

[1] May be a different state: natural and unnatural parity exchanges.
[2] Natural parity exchange.
[3] Superseded by DZIERBA 06 excluding this state in a more refined PWA analysis, with 2.6 M events of $\pi^- p \to \pi^-\pi^-\pi^+ p$ and 3 M events of $\pi^- p \to \pi^-\pi^0\pi^0 p$ of E852 data.

$\pi_1(1600)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
234±50 OUR AVERAGE		Error includes scale factor of 1.7. See the ideogram below.			
$185\pm25\pm 28$	145k	[4] LU	05	B852	18 $\pi^- p \to \omega\pi^-\pi^0 p$
$403\pm80\pm115$	69k	[5] KUHN	04	B852	18 $\pi^- p \to \eta\pi^+\pi^-\pi^- p$
$340\pm40\pm 50$		[5] IVANOV	01	B852	18 $\pi^- p \to \eta'\pi^- p$

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

$168\pm20^{+150}_{-12}$		[5,6] ADAMS	98B	B852	18.3 $\pi^- p \to \pi^+\pi^-\pi^- p$

[4] May be a different state: natural and unnatural parity exchanges.
[5] Natural parity exchange.
[6] Superseded by DZIERBA 06 excluding this state in a more refined PWA analysis, with 2.6 M events of $\pi^- p \to \pi^-\pi^-\pi^+ p$ and 3 M events of $\pi^- p \to \pi^-\pi^0\pi^0 p$ of E852 data.

WEIGHTED AVERAGE
234±50 (Error scaled by 1.7)

			χ^2
LU	05	B852	1.7
KUHN	04	B852	1.5
IVANOV	01	B852	2.8
			5.9

(Confidence Level = 0.052)

$\pi_1(1600)$ width (MeV)
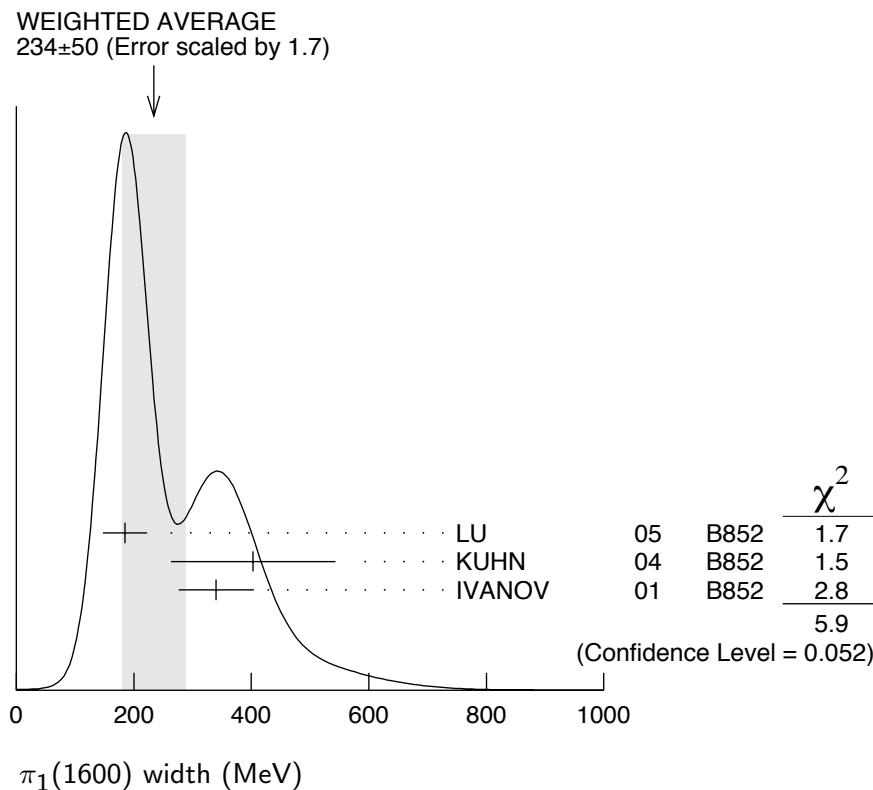
$\pi_1(1600)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\pi\pi\pi$	not seen
Γ_2	$\rho^0\pi^-$	not 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
not seen	[7] DZIERBA	06	B852	18 $\pi^- p$

[7] From the PWA analysis of 2.6 M $\pi^- p \to \pi^-\pi^-\pi^+ p$ and 3 M events of $\pi^- p \to \pi^-\pi^0\pi^0 p$ of E852 data. Supersedes ADAMS 98B.

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

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	[8] DZIERBA	06	B852	18 $\pi^- p$

[8] From the PWA analysis of 2.6 M $\pi^- p \to \pi^-\pi^-\pi^+ p$ and 3 M events of $\pi^- p \to \pi^-\pi^0\pi^0 p$ of E852 data. Supersedes CHUNG 02.

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
seen	35280	[9] BAKER	03	SPEC	$\overline{p}p \to \omega\pi^+\pi^-\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
seen	145k	LU	05	B852	$18\ \pi^- p \to \omega\pi^-\pi^0 p$

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

VALUE	DOCUMENT ID		TECN	COMMENT
seen	IVANOV	01	B852	$18\ \pi^- p \to \eta'\pi^- p$

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
3.80±0.78	69k	[10] KUHN	04	B852	$18\ \pi^- p \to \eta\pi^+\pi^-\pi^- p$

[9] $B((b_1\pi)_{D\text{-}wave})/B((b_1\pi)_{S\text{-wave}}) = 0.3 \pm 0.1$.

[10] Using $\eta'(958)\pi$ data from IVANOV 01.

$\pi_1(1600)$ REFERENCES

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