$a_4(2040)$

$I^G(J^{PC}) = 1^-(4^{++})$

$a_4(2040)$ MASS

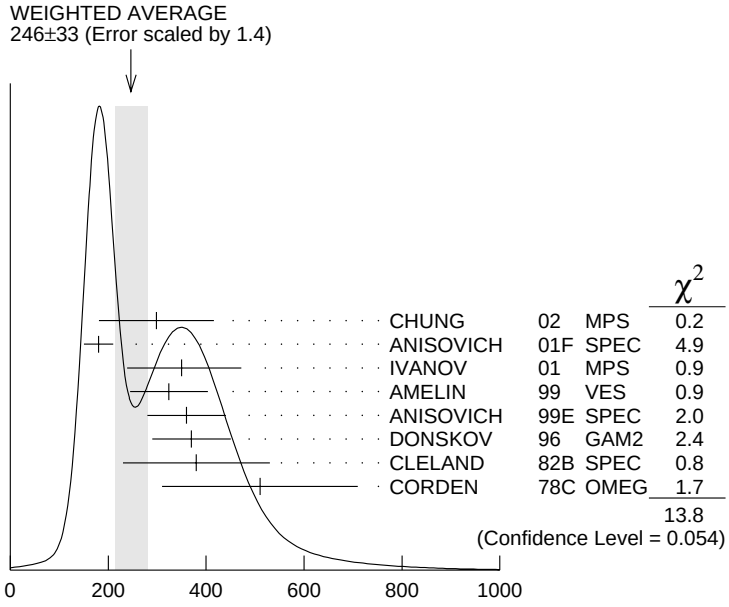
VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
2009±11 OUR NEW AVERAGE	[2011 ± 13 MeV OUR 2002 AVERAGE]				
$1996 \pm 25 \pm 43$	CHUNG	02	MPS		$18.3\ \pi^- p \rightarrow\ 3\pi p$
2005^{+25}_{-45}	ANISOVICH	01F	SPEC		$2.0\ \overline{p}p \rightarrow\ 3\pi^0,\ \pi^0\eta,\ \pi^0\eta'$
$2000 \pm 40^{+60}_{-20}$	IVANOV	01	MPS		$18\ \pi^- p \rightarrow\ \eta'\pi^- p$
$1944 \pm\ 8 \pm 50$	[1] AMELIN	99	VES		$37\ \pi^- A \rightarrow \omega\pi^-\pi^0 A^*$
2005 ± 25	ANISOVICH	99E	SPEC		
2010 ± 20	[2] DONSKOV	96	GAM2	0	$38\ \pi^- p \rightarrow\ \eta\pi^0 n$
2040 ± 30	[3] CLELAND	82B	SPEC	±	$50\ \pi p \rightarrow\ K^0_S K^\pm p$
2030 ± 50	[4] CORDEN	78C	OMEG	0	$15\ \pi^- p \rightarrow\ 3\pi n$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1903 ± 10	[5] BALDI	78	SPEC	−	$10\ \pi^- p \rightarrow p K^0_S K^-$

[1] May be a different state.
[2] From a simultaneous fit to the G_+ and G_0 wave intensities.
[3] From an amplitude analysis.
[4] $J^P = 4^+$ is favored, though $J^P = 2^+$ cannot be excluded.
[5] From a fit to the Y^0_8 moment. Limited by phase space.

$a_4(2040)$ WIDTH

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
246± 33 OUR NEW AVERAGE Error includes scale factor of 1.4. See the ideogram below. [360 ± 40 MeV OUR 2002 AVERAGE]					
$298 \pm\ 81 \pm 85$	CHUNG	02	MPS		$18.3\ \pi^- p \rightarrow\ 3\pi p$
$180 \pm\ 30$	ANISOVICH	01F	SPEC		$2.0\ \overline{p}p \rightarrow\ 3\pi^0,\ \pi^0\eta,\ \pi^0\eta'$
$350 \pm 100^{+70}_{-50}$	IVANOV	01	MPS		$18\ \pi^- p \rightarrow\ \eta'\pi^- p$
$324 \pm\ 26 \pm 75$	[6] AMELIN	99	VES		$37\ \pi^- A \rightarrow \omega\pi^-\pi^0 A^*$
$360 \pm\ 80$	ANISOVICH	99E	SPEC		
$370 \pm\ 80$	[7] DONSKOV	96	GAM2	0	$38\ \pi^- p \rightarrow\ \eta\pi^0 n$
380 ± 150	[8] CLELAND	82B	SPEC	±	$50\ \pi p \rightarrow\ K^0_S K^\pm p$
510 ± 200	[9] CORDEN	78C	OMEG	0	$15\ \pi^- p \rightarrow\ 3\pi n$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$166 \pm\ 43$	[10] BALDI	78	SPEC	−	$10\ \pi^- p \rightarrow p K^0_S K^-$

[6] May be a different state.
[7] From a simultaneous fit to the G_+ and G_0 wave intensities.
[8] From an amplitude analysis.
[9] $J^P = 4^+$ is favored, though $J^P = 2^+$ cannot be excluded.
[10] From a fit to the Y_8^0 moment. Limited by phase space.



$a_4(2040)$ MASS

$a_4(2040)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$K\overline{K}$	seen
Γ_2	$\pi^+\pi^-\pi^0$	seen
Γ_3	$\rho\pi$	seen
Γ_4	$f_2(1270)\pi$	seen
Γ_5	$\eta\pi^0$	seen
Γ_6	$\eta'(958)\pi$	seen

$a_4(2040)$ BRANCHING RATIOS

$\Gamma(K\overline{K})/\Gamma_{total}$ **Γ_1/Γ**

VALUE	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
seen	BALDI	78	SPEC	$\pm$	10 $\pi^- p \to K_S^0 K^- p$

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

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
seen	CORDEN	78C	OMEG	0	15 $\pi^- p \rightarrow 3\pi n$

$\Gamma(\rho\pi)/\Gamma(f_2(1270)\pi)$ Γ_3/Γ_4

VALUE	DOCUMENT ID		TECN	COMMENT
1.1 ±0.2 ±0.2	CHUNG	02	MPS	18.3 $\pi^- p \rightarrow 3\pi p$

$\Gamma(\eta\pi^0)/\Gamma_{total}$ Γ_5/Γ

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
seen	DONSKOV	96	GAM2	0	38 $\pi^- p \rightarrow \eta\pi^0 n$

$a_4(2040)$ REFERENCES

CHUNG	02	PR D65 072001	S.U. Chung *et al.*	
ANISOVICH	01F	PL B517 261	A.V. Anisovich *et al.*	
IVANOV	01	PRL 86 3977	E.I. Ivanov *et al.*	
AMELIN	99	PAN 62 445 Translated from YAF 62 487.	D.V. Amelin *et al.*	(VES Collab.)
ANISOVICH	99E	PL B452 187	A.V. Anisovich *et al.*	
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CLELAND	82B	NP B208 228	W.E. Cleland *et al.*	(DURH, GEVA, LAUS+)
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CORDEN	78C	NP B136 77	M.J. Corden *et al.*	(BIRM, RHEL, TELA+) JP

OTHER RELATED PAPERS

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