$a_4(2040)$

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

$a_4(2040)$ MASS

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
2011±13 OUR AVERAGE					
$2000 \pm 40 \,^{+60}_{-20}$	IVANOV	01			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*
360± 40 OUR AVERAGE					
$350 \pm 100 \,^{+70}_{-50}$	IVANOV	01			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 ± 80	ANISOVICH	99E	SPEC		
370 ± 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 ± 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^0_8 moment. Limited by phase space.

$a_4(2040)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$K\overline{K}$	seen
Γ_2	$\pi^+\pi^-\pi^0$	seen
Γ_3	$\eta\pi^0$	seen
Γ_4	$\eta'(958)\pi$	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 $\pi^- p \rightarrow K^0_S K^- p$

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

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

$\Gamma(\eta\pi^0)/\Gamma_{total}$ Γ_3/Γ

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

$a_4(2040)$ REFERENCES

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.*	
DONSKOV	96	PAN 59 982 Translated from YAF 59 1027.	S.V. Donskov *et al.*	(GAMS Collab.) IGJPC
CLELAND	82B	NP B208 228	W.E. Cleland *et al.*	(DURH, GEVA, LAUS+)
BALDI	78	PL 74B 413	R. Baldi *et al.*	(GEVA) JP
CORDEN	78C	NP B136 77	M.J. Corden *et al.*	(BIRM, RHEL, TELA+) JP

OTHER RELATED PAPERS

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