

$a_4(2040)$

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

$a_4(2040)$ MASS

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
2010 ± 12 OUR AVERAGE				
1996 ± 25 ± 43	CHUNG	02	MPS	18.3 $\pi^- p \rightarrow 3\pi p$
2000 ± 40 ⁺⁶⁰ ₋₂₀	IVANOV	01	MPS	18 $\pi^- p \rightarrow \eta' \pi^- p$
1944 ± 8 ± 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 $\pi p \rightarrow K_S^0 K^\pm p$
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. ● ● ●				
2005 ⁺²⁵ ₋₄₅	ANISOVICH	01F	SPEC	2.0 $\bar{p} p \rightarrow 3\pi^0, \pi^0 \eta, \pi^0 \eta'$
1903 ± 10	⁵ BALDI	78	SPEC -	10 $\pi^- p \rightarrow \rho K_S^0 K^-$

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_8^0 moment. Limited by phase space.

$a_4(2040)$ WIDTH

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
353 ± 40 OUR AVERAGE				
298 ± 81 ± 85	CHUNG	02	MPS	18.3 $\pi^- p \rightarrow 3\pi p$
350 ± 100 ⁺⁷⁰ ₋₅₀	IVANOV	01	MPS	18 $\pi^- p \rightarrow \eta' \pi^- p$
324 ± 26 ± 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 $\pi p \rightarrow K_S^0 K^\pm p$
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. ● ● ●				
180 ± 30	ANISOVICH	01F	SPEC	2.0 $\bar{p} p \rightarrow 3\pi^0, \pi^0 \eta, \pi^0 \eta'$
166 ± 43	¹⁰ BALDI	78	SPEC -	10 $\pi^- p \rightarrow \rho K_S^0 K^-$

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.

$a_4(2040)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $K\bar{K}$	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

$\Gamma(K\bar{K})/\Gamma_{\text{total}}$					Γ_1/Γ
VALUE	DOCUMENT ID	TECN	CHG	COMMENT	
seen	BALDI	78	SPEC	\pm	$10 \pi^- p \rightarrow K_S^0 K^- p$

$\Gamma(\pi^+\pi^-\pi^0)/\Gamma_{\text{total}}$					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	CHG	COMMENT	
$1.1 \pm 0.2 \pm 0.2$	CHUNG	02	MPS		$18.3 \pi^- p \rightarrow 3\pi p$

$\Gamma(\eta\pi^0)/\Gamma_{\text{total}}$					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 <i>et al.</i>	
ANISOVICH	01F	PL B517 261	A.V. Anisovich <i>et al.</i>	
IVANOV	01	PRL 86 3977	E.I. Ivanov <i>et al.</i>	
AMELIN	99	PAN 62 445	D.V. Amelin <i>et al.</i>	(VES Collab.)
		Translated from YAF 62 487.		
ANISOVICH	99E	PL B452 187	A.V. Anisovich <i>et al.</i>	
DONSKOV	96	PAN 59 982	S.V. Donskov <i>et al.</i>	(GAMS Collab.) IGJPC
		Translated from YAF 59 1027.		
CLELAND	82B	NP B208 228	W.E. Cleland <i>et al.</i>	(DURH, GEVA, LAUS+)
BALDI	78	PL 74B 413	R. Baldi <i>et al.</i>	(GEVA) JP
CORDEN	78C	NP B136 77	M.J. Corden <i>et al.</i>	(BIRM, RHEL, TELA+) JP

