

$\Xi(2500)$

$I(J^P) = \frac{1}{2}(??)$ Status: *
J, P need confirmation.

OMITTED FROM SUMMARY TABLE

The ALITTI 69 peak might be instead the $\Xi(2370)$ or might be neither the $\Xi(2370)$ nor the $\Xi(2500)$.

$\Xi(2500)$ MASS

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
≈ 2500 OUR ESTIMATE					
2505 ± 10		JENKINS	83	MPS	— $K^- p \rightarrow K^+$ MM
2430 ± 20	30	ALITTI	69	HBC	— $K^- p$ 4.6–5 GeV/c
2500 ± 10	45	BARTSCH	69	HBC	—0 $K^- p$ 10 GeV/c

$\Xi(2500)$ WIDTH

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>
150 ⁺⁶⁰ —40	ALITTI	69	HBC
59 ± 27	BARTSCH	69	HBC

$\Xi(2500)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad \Xi \pi$	
$\Gamma_2 \quad \Lambda \bar{K}$	
$\Gamma_3 \quad \Sigma \bar{K}$	
$\Gamma_4 \quad \Xi \pi \pi$	seen
$\Gamma_5 \quad \Xi(1530) \pi$	
$\Gamma_6 \quad \Lambda \bar{K} \pi + \Sigma \bar{K} \pi$	seen

$\Xi(2500)$ BRANCHING RATIOS

$\Gamma(\Xi \pi) / [\Gamma(\Xi \pi) + \Gamma(\Lambda \bar{K}) + \Gamma(\Sigma \bar{K}) + \Gamma(\Xi(1530) \pi)]$		$\Gamma_1 / (\Gamma_1 + \Gamma_2 + \Gamma_3 + \Gamma_5)$	
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<0.5	ALITTI	69	HBC 1 standard dev. limit
$\Gamma(\Lambda \bar{K}) / [\Gamma(\Xi \pi) + \Gamma(\Lambda \bar{K}) + \Gamma(\Sigma \bar{K}) + \Gamma(\Xi(1530) \pi)]$		$\Gamma_2 / (\Gamma_1 + \Gamma_2 + \Gamma_3 + \Gamma_5)$	
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>
0.5 ± 0.2	ALITTI	69	HBC —
$\Gamma(\Sigma \bar{K}) / [\Gamma(\Xi \pi) + \Gamma(\Lambda \bar{K}) + \Gamma(\Sigma \bar{K}) + \Gamma(\Xi(1530) \pi)]$		$\Gamma_3 / (\Gamma_1 + \Gamma_2 + \Gamma_3 + \Gamma_5)$	
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>
0.5 ± 0.2	ALITTI	69	HBC —

$$\frac{\Gamma(\Xi(1530)\pi)}{[\Gamma(\Xi\pi) + \Gamma(\Lambda\bar{K}) + \Gamma(\Sigma\bar{K}) + \Gamma(\Xi(1530)\pi)]} \quad \Gamma_5/(\Gamma_1+\Gamma_2+\Gamma_3+\Gamma_5)$$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<0.2	ALITTI	69	HBC 1 standard dev. limit

$$\Gamma(\Xi\pi\pi)/\Gamma_{\text{total}} \quad \Gamma_4/\Gamma$$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>
seen	BARTSCH	69	HBC -0

$$[\Gamma(\Lambda\bar{K}\pi) + \Gamma(\Sigma\bar{K}\pi)]/\Gamma_{\text{total}} \quad \Gamma_6/\Gamma$$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>
seen	BARTSCH	69	HBC -0

$\Xi(2500)$ REFERENCES

JENKINS	83	PRL 51 951	C.M. Jenkins <i>et al.</i>	(FSU, BRAN, LBL+)
ALITTI	69	PRL 22 79	J. Alitti <i>et al.</i>	(BNL, SYRA) I
BARTSCH	69	PL 28B 439	J. Bartsch <i>et al.</i>	(AACH, BERL, CERN+)