

$\Xi(2500)$

$I(J^P) = \frac{1}{2}(??)$ 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						
VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT	
≈ 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				
VALUE (MeV)	DOCUMENT ID	TECN	CHG	
150^{+60}_{-40}	ALITTI	69	HBC	—
59 ± 27	BARTSCH	69	HBC	—0

$\Xi(2500)$ 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				
$\Gamma(\Xi \pi)/[\Gamma(\Xi \pi) + \Gamma(\Lambda \bar{K}) + \Gamma(\Sigma \bar{K}) + \Gamma(\Xi(1530) \pi)]$	$\Gamma_1/(\Gamma_1 + \Gamma_2 + \Gamma_3 + \Gamma_5)$			
VALUE	DOCUMENT ID	TECN	CHG	COMMENT
< 0.5	ALITTI	69	HBC	1 standard dev. limit
$\Gamma(\Lambda \bar{K})/[\Gamma(\Xi \pi) + \Gamma(\Lambda \bar{K}) + \Gamma(\Sigma \bar{K}) + \Gamma(\Xi(1530) \pi)]$	$\Gamma_2/(\Gamma_1 + \Gamma_2 + \Gamma_3 + \Gamma_5)$			
VALUE	DOCUMENT ID	TECN	CHG	
0.5 ± 0.2	ALITTI	69	HBC	—
$\Gamma(\Sigma \bar{K})/[\Gamma(\Xi \pi) + \Gamma(\Lambda \bar{K}) + \Gamma(\Sigma \bar{K}) + \Gamma(\Xi(1530) \pi)]$	$\Gamma_3/(\Gamma_1 + \Gamma_2 + \Gamma_3 + \Gamma_5)$			
VALUE	DOCUMENT ID	TECN	CHG	
0.5 ± 0.2	ALITTI	69	HBC	—

$$\frac{\Gamma(\Xi(1530)\pi)}{[\Gamma(\Xi\pi) + \Gamma(\Lambda\bar{K}) + \Gamma(\Sigma\bar{K}) + \Gamma(\Xi(1530)\pi)]}$$

$$\frac{\Gamma_5}{\Gamma_1 + \Gamma_2 + \Gamma_3 + \Gamma_5}$$

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

$$\frac{\Gamma(\Xi\pi\pi)}{\Gamma_{\text{total}}}$$

$$\frac{\Gamma_4}{\Gamma}$$

VALUE	DOCUMENT ID	TECN	CHG
seen	BARTSCH 69	HBC	−0

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

$$\frac{\Gamma_6}{\Gamma}$$

VALUE	DOCUMENT ID	TECN	CHG
seen	BARTSCH 69	HBC	−0

Ξ(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+)