

# $\Xi(1950)$

$$I(J^P) = \frac{1}{2}(??) \quad \text{Status: } ***$$

We list here everything reported between 1875 and 2000 MeV. The accumulated evidence for a  $\Xi$  near 1950 MeV seems strong enough to include a  $\Xi(1950)$  in the main Baryon Table, but not much can be said about its properties. In fact, there may be more than one  $\Xi$  near this mass.

## $\Xi(1950)$ MASS

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>1950±15 OUR ESTIMATE</b>				
1955± 6		ADAMOVICH 99B	WA89	$\Sigma^-$ nucleus, 345 GeV
1944± 9	129	BIAGI 87	SPEC	$\Xi^- \text{Be} \rightarrow (\Xi^- \pi^+) \pi^- X$
1963± 5±2	63	BIAGI 87C	SPEC	$\Xi^- \text{Be} \rightarrow (\Lambda \bar{K}^0) X$
1937± 7	150	BIAGI 81	SPEC	SPS hyperon beam
1961±18	139	BRIEFEL 77	HBC	$2.87 K^- p \rightarrow \Xi^- \pi^+ X$
1936±22	44	BRIEFEL 77	HBC	$2.87 K^- p \rightarrow \Xi^0 \pi^- X$
1964±10	56	BRIEFEL 77	HBC	$\Xi(1530) \pi$
1900±12		DIBIANCA 75	DBC	$\Xi \pi$
1952±11	25	ROSS 73C		$(\Xi \pi)^-$
1956± 6	29	BADIER 72	HBC	$\Xi \pi, \Xi \pi \pi, Y K$
1955±14	21	GOLDWASSER 70	HBC	$\Xi \pi$
1894±18	66	DAUBER 69	HBC	$\Xi \pi$
1930±20	27	ALITTI 68	HBC	$\Xi^- \pi^+$
1933±16	35	BADIER 65	HBC	$\Xi^- \pi^+$

## $\Xi(1950)$ WIDTH

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>60±20 OUR ESTIMATE</b>				
68±22		ADAMOVICH 99B	WA89	$\Sigma^-$ nucleus, 345 GeV
100±31	129	BIAGI 87	SPEC	$\Xi^- \text{Be} \rightarrow (\Xi^- \pi^+) \pi^- X$
25±15±1.2	63	BIAGI 87C	SPEC	$\Xi^- \text{Be} \rightarrow (\Lambda \bar{K}^0) X$
60± 8	150	BIAGI 81	SPEC	SPS hyperon beam
159±57	139	BRIEFEL 77	HBC	$2.87 K^- p \rightarrow \Xi^- \pi^+ X$
87±26	44	BRIEFEL 77	HBC	$2.87 K^- p \rightarrow \Xi^0 \pi^- X$
60±39	56	BRIEFEL 77	HBC	$\Xi(1530) \pi$
63±78		DIBIANCA 75	DBC	$\Xi \pi$
38±10		ROSS 73C		$(\Xi \pi)^-$
35±11	29	BADIER 72	HBC	$\Xi \pi, \Xi \pi \pi, Y K$
56±26	21	GOLDWASSER 70	HBC	$\Xi \pi$
98±23	66	DAUBER 69	HBC	$\Xi \pi$
80±40	27	ALITTI 68	HBC	$\Xi^- \pi^+$
140±35	35	BADIER 65	HBC	$\Xi^- \pi^+$

### $\Xi(1950)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $\Lambda \bar{K}$	seen
$\Gamma_2$ $\Sigma \bar{K}$	possibly seen
$\Gamma_3$ $\Xi \pi$	seen
$\Gamma_4$ $\Xi(1530) \pi$	
$\Gamma_5$ $\Xi \pi \pi$ (not $\Xi(1530) \pi$ )	

### $\Xi(1950)$ BRANCHING RATIOS

$\Gamma(\Sigma \bar{K})/\Gamma(\Lambda \bar{K})$						$\Gamma_2/\Gamma_1$
VALUE	CL%	EVTs	DOCUMENT ID	TECN	COMMENT	
<2.3	90	0	BIAGI	87C	SPEC	$\Xi^-$ Be 116 GeV

  

$\Gamma(\Sigma \bar{K})/\Gamma_{\text{total}}$						$\Gamma_2/\Gamma$
VALUE		EVTs	DOCUMENT ID	TECN	COMMENT	
<b>possibly seen</b>		17	HASSALL	81	HBC	$K^- p$ 6.5 GeV/c

  

$\Gamma(\Xi \pi)/\Gamma(\Xi(1530) \pi)$						$\Gamma_3/\Gamma_4$
VALUE			DOCUMENT ID	TECN		
$2.8^{+0.7}_{-0.6}$			APSELL	70	HBC	

  

$\Gamma(\Xi \pi \pi \text{ (not } \Xi(1530) \pi))/\Gamma(\Xi(1530) \pi)$						$\Gamma_5/\Gamma_4$
VALUE			DOCUMENT ID	TECN		
$0.0 \pm 0.3$			APSELL	70	HBC	

### $\Xi(1950)$ REFERENCES

ADAMOVICH	99B	EPJ C11 271	M.I. Adamovich <i>et al.</i>	(CERN WA89 Collab.)
BIAGI	87	ZPHY C34 15	S.F. Biagi <i>et al.</i>	(BRIS, CERN, GEVA+)
BIAGI	87C	ZPHY C34 175	S.F. Biagi <i>et al.</i>	(BRIS, CERN, GEVA+)
BIAGI	81	ZPHY C9 305	S.F. Biagi <i>et al.</i>	(BRIS, CAVE, GEVA+)
HASSALL	81	NP B189 397	J.K. Hassall <i>et al.</i>	(CAVE, MSU)
BRIEFEL	77	PR D16 2706	E. Briefel <i>et al.</i>	(BRAN, UMD, SYRA+)
		Also Duke Conf. 317	E. Briefel <i>et al.</i>	(BRAN, UMD, SYRA+)
		Hyperon Resonances, 1970		
DIBIANCA	75	NP B98 137	F.A. Dibianca, R.J. Endorf	(CMU)
ROSS	73C	Purdue Conf. 345	R.T. Ross, J.L. Lloyd, D. Radojicic	(OXF)
BADIER	72	NP B37 429	J. Badier <i>et al.</i>	(EPOL)
APSELL	70	PRL 24 777	S.P. Apsell <i>et al.</i>	(BRAN, UMD, SYRA+) I
GOLDWASSER	70	PR D1 1960	E.L. Goldwasser, P.F. Schultz	(ILL)
DAUBER	69	PR 179 1262	P.M. Dauber <i>et al.</i>	(LRL) I
ALITTI	68	PRL 21 1119	J. Alitti <i>et al.</i>	(BNL, SYRA) I
BADIER	65	PL 16 171	J. Badier <i>et al.</i>	(EPOL, SACL, AMST) I