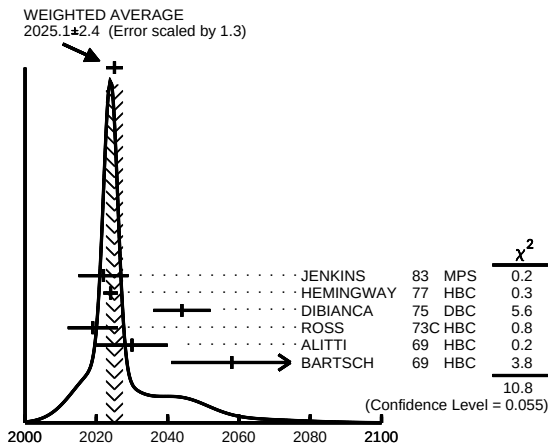
Baryon Full Listings

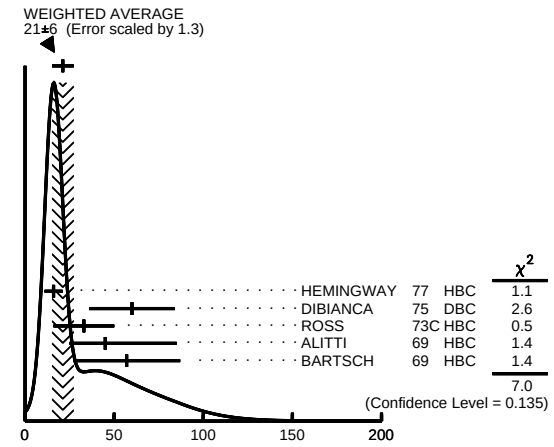
$\Xi(2030)$, $\Xi(2120)$



$\Xi(2030)$ mass (MeV)

$\Xi(2030)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
20^{+15}_{-5} OUR ESTIMATE						
21± 6 OUR AVERAGE	Error includes scale factor of 1.3. See the ideogram below.					
16± 5	200	HEMINGWAY	77	HBC	–	K^- p 4.2 GeV/c
60± 24		DIBIANCA	75	DBC	−0	$\Xi\pi\pi$, $\Xi^*\pi$
33± 17	15	ROSS	73C	HBC	−0	$\Sigma\overline{K}$
45^{+40}_{-20}		ALITTI	69	HBC	–	K^- p 3.9–5 GeV/c
57± 30		BARTSCH	69	HBC	−0	K^- p 10 GeV/c



$\Xi(2030)$ width (MeV)

$\Xi(2030)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\Lambda\overline{K}$	~ 20 %
Γ_2	$\Sigma\overline{K}$	~ 80 %
Γ_3	$\Xi\pi$	small
Γ_4	$\Xi(1530)\pi$	small
Γ_5	$\Xi\pi\pi$ (not $\Xi(1530)\pi$)	small
Γ_6	$\Lambda\overline{K}\pi$	small
Γ_7	$\Sigma\overline{K}\pi$	small

$\Xi(2030)$ BRANCHING RATIOS

$\Gamma(\Xi\pi)/[\Gamma(\Lambda\overline{K})+\Gamma(\Sigma\overline{K})+\Gamma(\Xi\pi)+\Gamma(\Xi(1530)\pi)]$ $\Gamma_3/(\Gamma_1+\Gamma_2+\Gamma_3+\Gamma_4)$

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.30	ALITTI	69	HBC	–	1 standard dev. limit

$\Gamma(\Xi\pi)/\Gamma(\Sigma\overline{K})$ Γ_3/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	CHG	COMMENT
<0.19	95	HEMINGWAY	77	HBC	–	K^- p 4.2 GeV/c

$\Gamma(\Lambda\overline{K})/[\Gamma(\Lambda\overline{K})+\Gamma(\Sigma\overline{K})+\Gamma(\Xi\pi)+\Gamma(\Xi(1530)\pi)]$ $\Gamma_1/(\Gamma_1+\Gamma_2+\Gamma_3+\Gamma_4)$

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
0.25± 0.15	ALITTI	69	HBC	–	K^- p 3.9–5 GeV/c

$\Gamma(\Lambda\overline{K})/\Gamma(\Sigma\overline{K})$ Γ_1/Γ_2

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
0.22± 0.09	HEMINGWAY	77	HBC	–	K^- p 4.2 GeV/c

$\Gamma(\Sigma\overline{K})/[\Gamma(\Lambda\overline{K})+\Gamma(\Sigma\overline{K})+\Gamma(\Xi\pi)+\Gamma(\Xi(1530)\pi)]$ $\Gamma_2/(\Gamma_1+\Gamma_2+\Gamma_3+\Gamma_4)$

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
0.75± 0.20	ALITTI	69	HBC	–	K^- p 3.9–5 GeV/c

$\Gamma(\Xi(1530)\pi)/[\Gamma(\Lambda\overline{K})+\Gamma(\Sigma\overline{K})+\Gamma(\Xi\pi)+\Gamma(\Xi(1530)\pi)]$ $\Gamma_4/(\Gamma_1+\Gamma_2+\Gamma_3+\Gamma_4)$

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.15	ALITTI	69	HBC	–	1 standard dev. limit

$[\Gamma(\Xi(1530)\pi)+\Gamma(\Xi\pi\pi(\text{not}\,\Xi(1530)\pi))]/\Gamma(\Sigma\overline{K})$ $(\Gamma_4+\Gamma_5)/\Gamma_2$

VALUE	CL%	DOCUMENT ID		TECN	CHG	COMMENT
<0.11	95	[1] HEMINGWAY	77	HBC	–	K^- p 4.2 GeV/c

$\Gamma(\Lambda\overline{K}\pi)/\Gamma_{\text{total}}$ Γ_6/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
seen	BARTSCH	69	HBC	K^- p 10 GeV

$\Gamma(\Lambda\overline{K}\pi)/\Gamma(\Sigma\overline{K})$ Γ_6/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	CHG	COMMENT
<0.32	95	HEMINGWAY	77	HBC	–	K^- p 4.2 GeV/c

$\Gamma(\Sigma\overline{K}\pi)/\Gamma_{\text{total}}$ Γ_7/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
seen	BARTSCH	69	HBC	K^- p 10 GeV

$\Gamma(\Sigma\overline{K}\pi)/\Gamma(\Sigma\overline{K})$ Γ_7/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	CHG	COMMENT
<0.04	95	[2] HEMINGWAY	77	HBC	–	K^- p 4.2 GeV/c

$\Xi(2030)$ FOOTNOTES

[1] For the decay mode $\Xi^-\pi^+\pi^-$ only.
[2] For the decay mode $\Sigma^\pm K^-\pi^\mp$ only.

$\Xi(2030)$ REFERENCES

JENKINS	83	PRL 51 951	+Albright, Diamond+	(FSU, BRAN, LBL, CINC, MASD)
HEMINGWAY	77	PL 68B 197	+Armenteros+	(AMST, CERN, NIJM, OXF) IJ
Also	76C	PL 62B 477	Gay, Armenteros, Berge+	(AMST, CERN, NIJM)
DIBIANCA	75	NP B98 137	+Endorf	(CMU)
ROSS	73C	Purdue Conf. 345	+Lloyd, Radojicic	(OXF)
ALITTI	69	PRL 22 79	+Barnes, Flaminio, Metzger+	(BNL, SYRA) I
BARTSCH	69	PL 28B 439	+	(AACH, BERL, CERN, LOIC, VIEN)
ALITTI	68	PRL 21 1119	+Flaminio, Metzger, Radojicic+	(BNL, SYRA)

$\Xi(2120)$

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

OMITTED FROM SUMMARY TABLE

$\Xi(2120)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
≈ 2120 OUR ESTIMATE					
2137±4	18	[1] CHLIAPNIK...	79	HBC	K^+ p 32 GeV/c
2123±7		[2] GAY	76C	HBC	K^- p 4.2 GeV/c

$\Xi(2120)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
<20	18	[1] CHLIAPNIK...	79	HBC	K^+ p 32 GeV/c
25±12		[2] GAY	76C	HBC	K^- p 4.2 GeV/c

$\Xi(2120)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\Lambda\overline{K}$	seen