NODE=B080

$\Sigma(1560)$ Bumps

$I(J^P) = 1(?^?)$ Status: $**$

OMITTED FROM SUMMARY TABLE

NODE=B080

This entry lists peaks reported in mass spectra around 1560 MeV without implying that they are necessarily related.

DIONISI 78B observes a 6 standard-deviation enhancement at 1553 MeV in the charged $\Lambda/\Sigma\pi$ mass spectra from $K^- p \rightarrow (\Lambda/\Sigma)\pi K\overline{K}$ at 4.2 GeV/c. In a CERN ISR experiment, LOCKMAN 78 reports a narrow 6 standard-deviation enhancement at 1572 MeV in $\Lambda\pi^{\pm}$ from the reaction $pp \rightarrow \Lambda\pi^+\pi^- X$. These enhancements are unlikely to be associated with the $\Sigma(1580)$ (which has not been confirmed by several recent experiments – see the next entry in the Listings).

CARROLL 76 observes a bump at 1550 MeV (as well as one at 1580 MeV) in the isospin-1 $\overline{K}N$ total cross section, but uncertainties in cross section measurements outside the mass range of the experiment preclude estimating its significance.

See also MEADOWS 80 for a review of this state.

$\Sigma(1560)$ MASS (PRODUCTION EXPERIMENTS)

NODE=B080M

NODE=B080M

→ UNCHECKED ←

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
≈ 1560 OUR ESTIMATE						
1553±7	121	DIONISI	78B	HBC	±	$K^- p \rightarrow (Y\pi)K\overline{K}$
1572±4	40	LOCKMAN	78	SPEC	±	$pp \rightarrow \Lambda\pi^+\pi^- X$

$\Sigma(1560)$ WIDTH (PRODUCTION EXPERIMENTS)

NODE=B080W

NODE=B080W

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
79±30	121	DIONISI	78B	HBC	±	$K^- p \rightarrow (Y\pi)K\overline{K}$
15± 6	40	[1] LOCKMAN	78	SPEC	±	$pp \rightarrow \Lambda\pi^+\pi^- X$

$\Sigma(1560)$ DECAY MODES (PRODUCTION EXPERIMENTS)

NODE=B080215;NODE=B080

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\Lambda\pi$	seen
Γ_2	$\Sigma\pi$	

DESIG=1

DESIG=2

$\Sigma(1560)$ BRANCHING RATIOS (PRODUCTION EXPERIMENTS)

NODE=B080220

$\Gamma(\Sigma\pi)/[\Gamma(\Lambda\pi)+\Gamma(\Sigma\pi)]$ $\Gamma_2/(\Gamma_1+\Gamma_2)$

NODE=B080R1

NODE=B080R1

VALUE	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
0.35±0.12	DIONISI	78B	HBC	±	$K^- p \rightarrow (Y\pi)K\overline{K}$

$\Gamma(\Lambda\pi)/\Gamma_{total}$ Γ_1/Γ

NODE=B080R2

NODE=B080R2

VALUE	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
seen	LOCKMAN	78	SPEC	±	$pp \rightarrow \Lambda\pi^+\pi^- X$

$\Sigma(1560)$ FOOTNOTES (PRODUCTION EXPERIMENTS)

NODE=B080

[1] The width observed by LOCKMAN 78 is consistent with experimental resolution.

NODE=B080;LINKAGE=A

$\Sigma(1560)$ REFERENCES (PRODUCTION EXPERIMENTS)

NODE=B080

MEADOWS	80	Toronto Conf. 283	B.T. Meadows	(CINC)	REFID=32077
DIONISI	78B	PL 78B 154	C. Dionisi, R. Armenteros, J. Diaz	(CERN, AMST+) I	REFID=32051
LOCKMAN	78	Saclay DPHPE 78-01	W. Lockman *et al.*	(UCLA, SACL)	REFID=32075
CARROLL	76	PRL 37 806	A.S. Carroll *et al.*	(BNL) I	REFID=31760