$\Sigma(3170)$ Bumps

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

OMITTED FROM SUMMARY TABLE

Seen by AMIRZADEH 79 as a narrow 6.5-standard-deviation enhancement in the reaction $K^- p \to Y^{*+} \pi^-$ using data from independent high statistics bubble chamber experiments at 8.25 and 6.5 GeV/c. The dominant decay modes are multibody, multistrange final states and the production is via isospin-3/2 baryon exchange. Isospin 1 is favored.

Not seen in a $K^- p$ experiment in LASS at 11 GeV/c (ASTON 85B).

$\Sigma(3170)$ MASS (PRODUCTION EXPERIMENTS)

VALUE (MeV)	*EVTS*	*DOCUMENT ID*	*TECN*	*COMMENT*
≈ 3170 OUR ESTIMATE				
3170±5	35	AMIRZADEH 79	HBC	$K^- p \to Y^{*+} \pi^-$

$\Sigma(3170)$ WIDTH (PRODUCTION EXPERIMENTS)

VALUE (MeV)	*EVTS*	*DOCUMENT ID*	*TECN*	*COMMENT*
<20	35	[1] AMIRZADEH 79	HBC	$K^- p \to Y^{*+} \pi^-$

$\Sigma(3170)$ DECAY MODES (PRODUCTION EXPERIMENTS)

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\Lambda K \overline{K} \pi$'s	seen
Γ_2	$\Sigma K \overline{K} \pi$'s	seen
Γ_3	$\Xi K \pi$'s	seen

$\Sigma(3170)$ BRANCHING RATIOS (PRODUCTION EXPERIMENTS)

$\Gamma(\Lambda K \overline{K} \pi\text{'s})/\Gamma_{\text{total}}$ **Γ_1/Γ**

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
seen	AMIRZADEH 79	HBC	$K^- p \to Y^{*+} \pi^-$

$\Gamma(\Sigma K \overline{K} \pi\text{'s})/\Gamma_{\text{total}}$ **Γ_2/Γ**

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
seen	AMIRZADEH 79	HBC	$K^- p \to Y^{*+} \pi^-$

$\Gamma(\Xi K \pi\text{'s})/\Gamma_{total}$ **Γ_3/Γ**

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
seen	AMIRZADEH 79	HBC	$K^- p \rightarrow Y^{*+} \pi^-$

$\Sigma(3170)$ FOOTNOTES (PRODUCTION EXPERIMENTS)

[1] Observed width consistent with experimental resolution.

$\Sigma(3170)$ REFERENCES (PRODUCTION EXPERIMENTS)

ASTON	85B	PR D32 2270	+Carnegie+	(SLAC, CARL, CNRC, CINC)
AMIRZADEH	79	PL 89B 125	+	(BIRM, CERN, GLAS, MSU, CURIN, CAVE+)
Also	80	Toronto Conf. 263	Kinson+	(BIRM, CERN, GLAS, MSU, CURIN)