$\Sigma(3170)$ 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	$K^- p \to Y^{*+} \pi^-$

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

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

Σ(3170) FOOTNOTES (PRODUCTION EXPERIMENTS)

[1] Observed width consistent with experimental resolution.

Σ(3170) REFERENCES (PRODUCTION EXPERIMENTS)

ASTON	85B	PR D32 2270	D. Aston et al.	(SLAC, CARL, CNRC, CINC)
AMIRZADEH	79	PL 89B 125	J. Amirzadeh et al.	(BIRM, CERN, GLAS+) I
Also		Toronto Conf. 263	J.B. Kinson et al.	(BIRM, CERN, GLAS+) I