

$\Sigma(1620)$ Production Experiments

$$I(J^P) = 1(?^?)$$

OMITTED FROM SUMMARY TABLE

Formation experiments are listed separately in the previous entry.

The results of CRENNELL 69B at 3.9 GeV/*c* are not confirmed by SABRE 70 at 3.0 GeV/*c*. However, at 4.5 GeV/*c*, AMMANN 70 sees a peak at 1642 MeV which on the basis of branching ratios they do not associate with the $\Sigma(1670)$. See MILLER 70 for a review of these conflicts.

$\Sigma(1620)$ MASS (PRODUCTION EXPERIMENTS)

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
≈ 1620 OUR ESTIMATE					
1642 \pm 12		AMMANN 70	DBC		$K^- N$ 4.5 GeV/ <i>c</i>
1618 \pm 3	20	BLUMENFELD 69	HBC	+	$K_L^0 p$
1619 \pm 8		CRENNELL 69B	DBC	\pm	$K^- N \rightarrow \Lambda \pi \pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1616 \pm 8		CRENNELL 68	DBC	\pm	See CRENNELL 69B

$\Sigma(1620)$ WIDTH (PRODUCTION EXPERIMENTS)

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
55 \pm 24		AMMANN 70	DBC		$K^- N$ 4.5 GeV/ <i>c</i>
30 \pm 10	20	BLUMENFELD 69	HBC	+	
72 $^{+22}_{-15}$		CRENNELL 69B	DBC	\pm	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
66 \pm 16		CRENNELL 68	DBC	\pm	See CRENNELL 69B

$\Sigma(1620)$ DECAY MODES (PRODUCTION EXPERIMENTS)

	Mode
Γ_1	$N \bar{K}$
Γ_2	$\Lambda \pi$
Γ_3	$\Sigma \pi$
Γ_4	$\Lambda \pi \pi$
Γ_5	$\Sigma(1385) \pi$
Γ_6	$\Lambda(1405) \pi$

Σ(1620) BRANCHING RATIOS (PRODUCTION EXPERIMENTS)

Γ(Λππ)/Γ(Λπ) Γ₄/Γ₂

<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>
~ 2.5	14	BLUMENFELD 69	HBC	+

Γ(N \bar{K})/Γ(Λπ) Γ₁/Γ₂

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
0.4±0.4	AMMANN 70	DBC		K ⁻ p 4.5 GeV/c
0.0±0.1	CRENNELL 68	DBC	+	See CRENNELL 69B

Γ(Λπ)/Γ_{total} Γ₂/Γ

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>
large	CRENNELL 68	DBC	±

Γ(Σ(1385)π)/Γ(Λπ) Γ₅/Γ₂

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
<0.3	95	AMMANN 70	DBC		K ⁻ p 4.5 GeV/c
0.2±0.1		CRENNELL 68	DBC	±	

Γ(Σπ)/Γ(Λπ) Γ₃/Γ₂

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<1.1	95	AMMANN 70	DBC	K ⁻ N 4.5 GeV/c

Γ(Λ(1405)π)/Γ(Λπ) Γ₆/Γ₂

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.7±0.4	AMMANN 70	DBC	K ⁻ p 4.5 GeV/c

Σ(1620) REFERENCES (PRODUCTION EXPERIMENTS)

AMMANN 70	PRL 24 327	+Garfinkel, Carmony, Gutay+	(PURD, IND)
Also	73 PR D7 1345	Ammann, Carmony, Garfinkel+	(PURD, IUPU)
MILLER 70	Duke Conf. 229		(PURD)
SABRE 70	NP B16 201	Barloutaud, Merril, Schever+	(SABRE Collab.)
BLUMENFELD 69	PL 29B 58	+Kalbfleisch	(BNL) I
CRENNELL 69B	Lund Paper 183	+Karshon, Lai, O'Neil, Scarr+	(BNL, CUNY) I
Results are quoted in LEVI-SETTI 69C.			
Also	69C Lund Conf.	Levi-Setti	(EFI)
CRENNELL 68	PRL 21 648	+Delaney, Flaminio, Karshon+	(BNL, CUNY) I