VALUE	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •			
+0.08 or +0.08	[1] MARTIN 77	DPWA	$\overline{K}N$ multichannel
+0.05	DEBELLEFON 76	IPWA	$K^- p \to \Lambda\pi^0$
0.08 ±0.01	PONTE 75	DPWA	$K^- p \to \Lambda\pi^0$ (sol. 1)
0.17 ±0.01	PONTE 75	DPWA	$K^- p \to \Lambda\pi^0$ (sol. 2)

$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{total}$ in $N\overline{K} \to \Sigma(1670) \to \Sigma\pi$ — $(\Gamma_1\Gamma_3)^{1/2}/\Gamma$

VALUE	DOCUMENT ID	TECN	COMMENT
+0.20±0.02	KOISO 85	DPWA	$K^- p \to \Sigma\pi$
+0.21±0.02	GOPAL 77	DPWA	$\overline{K}N$ multichannel
+0.20±0.01	HEPP 76B	DPWA	$K^- N \to \Sigma\pi$
+0.21±0.03	KANE 74	DPWA	$K^- p \to \Sigma\pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
+0.18 or +0.17	[1] MARTIN 77	DPWA	$\overline{K}N$ multichannel

$\Gamma(\Lambda\pi\pi)/\Gamma_{total}$ — Γ_4/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •			
<0.11	ARMENTEROS 68E	HBC	$K^- p$ (Γ_1=0.09)

$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{total}$ in $N\overline{K} \to \Sigma(1670) \to \Sigma(1385)\pi$, *S*-wave — $(\Gamma_1\Gamma_7)^{1/2}/\Gamma$

VALUE	DOCUMENT ID	TECN	COMMENT
+0.11±0.03	PREVOST 74	DPWA	$K^- N \to \Sigma(1385)\pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.17±0.02	[3] SIMS 68	DBC	$K^- N \to \Lambda\pi\pi$

$\Gamma(\Sigma\pi\pi)/\Gamma_{total}$ — Γ_5/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •			
<0.14	[4] ARMENTEROS 68E	HBC	$K^- p$, $K^- d$ (Γ_1=0.09)

$\Gamma(\Lambda(1405)\pi)/\Gamma_{total}$ — Γ_8/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •			
<0.06	ARMENTEROS 68E	HBC	$K^- p$, $K^- d$ (Γ_1=0.09)

$\Gamma_i\Gamma_f/\Gamma^2_{total}$ in $N\overline{K} \to \Sigma(1670) \to \Lambda(1405)\pi$ — $\Gamma_1\Gamma_8/\Gamma^2$

VALUE	DOCUMENT ID	TECN	COMMENT
0.007±0.002	[5] BRUCKER 70	DBC	$K^- N \to \Sigma\pi\pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
<0.03	BERLEY 69	HBC	$K^- p$ 0.6–0.82 GeV/c

$\Gamma(\Lambda(1405)\pi)/\Gamma(\Sigma(1385)\pi)$ — Γ_8/Γ_6

VALUE	DOCUMENT ID	TECN	COMMENT
0.23±0.08	BRUCKER 70	DBC	$K^- N \to \Sigma\pi\pi$

$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{total}$ in $N\overline{K} \to \Sigma(1670) \to \Lambda(1520)\pi$ — $(\Gamma_1\Gamma_9)^{1/2}/\Gamma$

VALUE	DOCUMENT ID	TECN	COMMENT
0.081±0.016	[6] CAMERON 77	DPWA	*P*-wave decay

$\Sigma(1670)$ FOOTNOTES

[1] The two MARTIN 77 values are from a T-matrix pole and from a Breit-Wigner fit.
[2] Results are with and without an S_{11} $\Sigma(1620)$ in the fit.
[3] SIMS 68 uses only cross-section data. Result used as upper limit only.
[4] Ratio only for $\Sigma 2\pi$ system in $I = 1$, which cannot be $\Sigma(1385)$.
[5] Assuming the $\Lambda(1405)\pi$ cross-section bump is due only to $3/2^-$ resonance.
[6] The CAMERON 77 upper limit on *F*-wave decay is 0.03.

$\Sigma(1670)$ REFERENCES

KOISO	85	NP A433 619	+Sai, Yamamoto, Kofler	(TOKY, MASA)
PDG	82	PL 111B	Roos, Porter, Aguilar-Benitez+	(HELS, CIT, CERN)
GOPAL	80	Toronto Conf. 159		(RHEL) IJP
ALSTON-...	78	PR D18 182	Alston-Garnjost, Kenney+	(LBL, MTHO, CERN) IJP
Also	77	PRL 38 1007	Alston-Garnjost, Kenney+	(LBL, MTHO, CERN) IJP
MORRIS	78	PR D17 55	+Albright, Colleraine, Kimel, Lannutti	(FSU) IJP
CAMERON	77	NP B131 399	+Franek, Gopal, Kalmus, McPherson+	(RHEL, LOIC) IJP
GOPAL	77	NP B119 362	+Ross, VanHorn, McPherson+	(LOIC, RHEL) IJP
MARTIN	77	NP B127 349	+Pidcock, Moorhouse	(LOUC, GLAS) IJP
Also	77B	NP B126 266	Martin, Pidcock	(LOUC)
Also	77C	NP B126 285	Martin, Pidcock	(LOUC) IJP
DEBELLEFON	76	NP B109 129	De Bellefon, Berthon	(CDEF) IJP
HEPP	76B	PL 65B 487	+Braun, Grimm, Strobele+	(CERN, HEIDH, MPIM) IJP
BAILLON	75	NP B94 39	+Litchfield	(CERN, RHEL) IJP
PONTE	75	PR D12 2597	+Hertzbach, Button-Shafer+	(MASA, TENN, UCR) IJP
VANHORN	75	NP B87 145		(LBL) IJP
Also	75B	NP B87 157	VanHorn	(LBL) IJP
DEVENISH	74B	NP B81 330	+Froggatt, Martin	(DESY, NORD, LOUC)
KANE	74	LBL-2452		(LBL) IJP
PREVOST	74	NP B69 246	+Barloutaud+	(SACL, CERN, HEID)
BRUCKER	70	Duke Conf. 155	+Harrison, Sims, Albright, Chandler+	(FSU) I
BERLEY	69	PL 30B 430	+Hart, Rahm, Willis, Yamamoto	(BNL)
ARMENTEROS	68E	PL 28B 521	+Baillon+	(CERN, HEID, SACL) I
SIMS	68	PRL 21 1413	+Albright, Bartley, Meer+	(FSU, TUFTS, BRAN)

$\Sigma(1670)$ Bumps

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

OMITTED FROM SUMMARY TABLE

Formation experiments are listed separately in the preceding entry.

Probably there are two states at the same mass with the same quantum numbers, one decaying to $\Sigma\pi$ and $\Lambda\pi$, the other to $\Lambda(1405)\pi$. See the note in front of the preceding entry.

$\Sigma(1670)$ MASS (PRODUCTION EXPERIMENTS)

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
≈ 1670 OUR ESTIMATE					
1670± 4		[1] CARROLL 76	DPWA		Isospin-1 total σ
1675±10		[2] HEPP 76	DBC	−	$K^- N$ 1.6–1.75 GeV/c
1665± 1		APSELL 74	HBC		$K^- p$ 2.87 GeV/c
1688± 2 or 1683 ± 5	1200	BERTHON 74	HBC	0	Quasi-2-body σ
1670± 6		AGUILAR-... 70B	HBC		$K^- p \to \Sigma\pi\pi$ 4 GeV
1668±10		AGUILAR-... 70B	HBC		$K^- p \to \Sigma 3\pi$ 4 GeV
1660±10		ALVAREZ 63	HBC	+	$K^- p$ 1.51 GeV/c
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1668±10	150	[3] FERRERSORIA 81	OMEG	−	$\pi^- p$ 9,12 GeV/c
1655 to 1677		TIMMERMANS 76	HBC	+	$K^- p$ 4.2 GeV/c
1665± 5		BUGG 68	CNTR		$K^- p$, d total σ
1661± 9	70	PRIMER 68	HBC	+	See BARNES 69E
1685		ALEXANDER 62C	HBC	−0	$\pi^- p$ 2–2.2 GeV/c

$\Sigma(1670)$ WIDTH (PRODUCTION EXPERIMENTS)

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
67.0± 2.4		APSELL 74	HBC		$K^- p$ 2.87 GeV/c
110 ±12		AGUILAR-... 70B	HBC		$K^- p \to \Sigma\pi\pi$ 4 GeV
135 $^{+40}_{-30}$		AGUILAR-... 70B	HBC		$K^- p \to \Sigma 3\pi$ 4 GeV
40 ±10		ALVAREZ 63	HBC	+	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
90 ±20	150	[3] FERRERSORIA 81	OMEG	−	$\pi^- p$ 9,12 GeV/c
52		[1] CARROLL 76	DPWA		Isospin-1 total σ
48 to 63		TIMMERMANS 76	HBC	+	$K^- p$ 4.2 GeV/c
30 ±15		BUGG 68	CNTR		
60 ±20	70	PRIMER 68	HBC	+	See BARNES 69E
45		ALEXANDER 62C	HBC	−0	

$\Sigma(1670)$ DECAY MODES (PRODUCTION EXPERIMENTS)

	Mode
Γ_1	$N\overline{K}$
Γ_2	$\Lambda\pi$
Γ_3	$\Sigma\pi$
Γ_4	$\Lambda\pi\pi$
Γ_5	$\Sigma\pi\pi$
Γ_6	$\Sigma(1385)\pi$
Γ_7	$\Lambda(1405)\pi$

$\Sigma(1670)$ BRANCHING RATIOS (PRODUCTION EXPERIMENTS)

$\Gamma(N\overline{K})/\Gamma(\Sigma\pi)$ — Γ_1/Γ_3

VALUE	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
<0.03		TIMMERMANS 76	HBC	+	$K^- p$ 4.2 GeV/c
<0.10		BERTHON 74	HBC	0	Quasi-2-body σ
<0.2		AGUILAR-... 70B	HBC		
<0.26		BARNES 69E	HBC	+	$K^- p$ 3.9–5 GeV/c
0.025		BUGG 68	CNTR	0	Assuming $J = 3/2$
<0.24	0	PRIMER 68	HBC	+	$K^- p$ 4.6–5 GeV/c
<0.6		LONDON 66	HBC	+	$K^- p$ 2.25 GeV/c
<0.19	0	ALVAREZ 63	HBC	+	$K^- p$ 1.15 GeV/c
≥ 0.5 ±0.25		SMITH 63	HBC	−0	