Ω_c^0

$I(J^P) = 0(\frac{1}{2}^+)$ Status: ***

The quantum numbers have not been measured, but are simply assigned in accord with the quark model, in which the Ω_c^0 is the ssc ground state.

Ω_c^0 MASS

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
2697.5± 2.6 OUR AVERAGE		Error includes scale factor of 1.2.			
2694.6± 2.6±1.9	40	[1] CRONIN-HEN..01		CLE2	$e^+e^- \approx$ 10.6 GeV
2699.9± 1.5±2.5	42	[2] FRABETTI	94H	E687	γ Be, $\overline{E}_\gamma$ = 221 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2705.9± 3.3±2.0	10	[3] FRABETTI	93	E687	γ Be, $\overline{E}_\gamma$ = 221 GeV
2719.0± 7.0±2.5	11	[4] ALBRECHT	92H	ARG	$e^+e^- \approx$ 10.6 GeV
2740 ±20	3	BIAGI	85B	SPEC	Σ^- Be 135 GeV/c

[1] CRONIN-HENNESSY 01 sees 40.4 ± 9.0 events in a sum over five channels.
[2] FRABETTI 94H claims a signal of 42.5 ± 8.8 $\Sigma^+ K^- K^- \pi^+$ events. The background is about 24 events.
[3] FRABETTI 93 claims a signal of 10.3 ± 3.9 $\Omega^- \pi^+$ events above a background of 5.8 events.
[4] ALBRECHT 92H claims a signal of 11.5 ± 4.3 $\Xi^- K^- \pi^+ \pi^+$ events. The background is about 5 events.

Ω_c^0 MEAN LIFE

VALUE (10^{-15} s)	EVTS	DOCUMENT ID		TECN	COMMENT
69±12 OUR AVERAGE					
72±11±11	64	LINK	03C	FOCS	$\Omega^- \pi^+$, $\Xi^- K^- \pi^+ \pi^+$
55^{+13+18}_{-11-23}	86	ADAMOVICH	95B	WA89	$\Omega^- \pi^- \pi^+ \pi^+$, $\Xi^- K^- \pi^+ \pi^+$
86^{+27}_{-20}±28	25	FRABETTI	95D	E687	$\Sigma^+ K^- K^- \pi^+$

Ω_c^0 DECAY MODES

No absolute branching fractions have been measured.

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\Sigma^+ K^- K^- \pi^+$	seen
Γ_2	$\Xi^0 K^- \pi^+$	seen
Γ_3	$\Xi^- K^- \pi^+ \pi^+$	seen
Γ_4	$\Omega^- e^+ \nu_e$	seen
Γ_5	$\Omega^- \pi^+$	seen
Γ_6	$\Omega^- \pi^+ \pi^0$	seen
Γ_7	$\Omega^- \pi^- \pi^+ \pi^+$	seen

Ω_c^0 BRANCHING RATIOS

$\Gamma(\Sigma^+ K^- K^- \pi^+)/\Gamma_{total}$ Γ_1/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
seen	42	FRABETTI	94H	E687	γ Be, $\overline{E}_\gamma = 221$ GeV

$\Gamma(\Sigma^+ K^- K^- \pi^+)/\Gamma(\Omega^- \pi^+)$ Γ_1/Γ_5

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<4.8	90	CRONIN-HEN..01		CLE2	$e^+e^- \approx 10.6$ GeV

$\Gamma(\Xi^0 K^- \pi^+)/\Gamma(\Omega^- \pi^+)$ Γ_2/Γ_5

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
4.0±2.5±0.4	9	CRONIN-HEN..01		CLE2	$e^+e^- \approx 10.6$ GeV

$\Gamma(\Xi^- K^- \pi^+ \pi^+)/\Gamma_{total}$ Γ_3/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
seen	11	ALBRECHT	92H	ARG	$e^+e^- \approx 10.6$ GeV
seen	3	BIAGI	85B	SPEC	Σ^- Be 135 GeV/c

$\Gamma(\Xi^- K^- \pi^+ \pi^+)/\Gamma(\Omega^- \pi^+)$ Γ_3/Γ_5

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
1.6±1.1±0.4		7	CRONIN-HEN..01		CLE2	$e^+e^- \approx 10.6$ GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<2.8	90		FRABETTI	93	E687	γ Be, $\overline{E}_\gamma = 221$ GeV

$\Gamma(\Omega^- \pi^+)/\Gamma(\Omega^- e^+ \nu_e)$ Γ_5/Γ_4

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.41±0.19±0.04	11	AMMAR	02	CLE2	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\Omega^- \pi^+)/\Gamma_{total}$ Γ_5/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
seen	13	CRONIN-HEN..01		CLE2	$e^+e^- \approx 10.6$ GeV
seen	10	FRABETTI	93	E687	γ Be, $\overline{E}_\gamma = 221$ GeV

$\Gamma(\Omega^- \pi^+ \pi^0)/\Gamma(\Omega^- \pi^+)$ Γ_6/Γ_5

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
4.2±2.2±0.9	12	CRONIN-HEN..01		CLE2	$e^+e^- \approx 10.6$ GeV

$\Gamma(\Omega^- \pi^- \pi^+ \pi^+)/\Gamma(\Omega^- \pi^+)$ Γ_7/Γ_5

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
seen		ADAMOVICH	95B	WA89	Σ^- 340 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.56	90	CRONIN-HEN..01		CLE2	$e^+e^- \approx 10.6$ GeV
<1.6	90	FRABETTI	93	E687	γ Be, $\overline{E}_\gamma = 221$ GeV

Ω_c^0 REFERENCES

LINK	03C	PL B561 41	J.M. Link *et al.*	(FNAL FOCUS Collab.)
AMMAR	02	PRL 89 171803	R. Ammar *et al.*	(CLEO Collab.)
CRONIN-HEN...	01	PRL 86 3730	D. Cronin-Hennessy *et al.*	(CLEO Collab.)
ADAMOVICH	95B	PL B358 151	M.I. Adamovich *et al.*	(CERN WA89 Collab.)
FRABETTI	95D	PL B357 678	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
FRABETTI	94H	PL B338 106	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
FRABETTI	93	PL B300 190	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
ALBRECHT	92H	PL B288 367	H. Albrecht *et al.*	(ARGUS Collab.)
BIAGI	85B	ZPHY C28 175	S.F. Biagi *et al.*	(CERN WA62 Collab.)