Ω_c^0

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

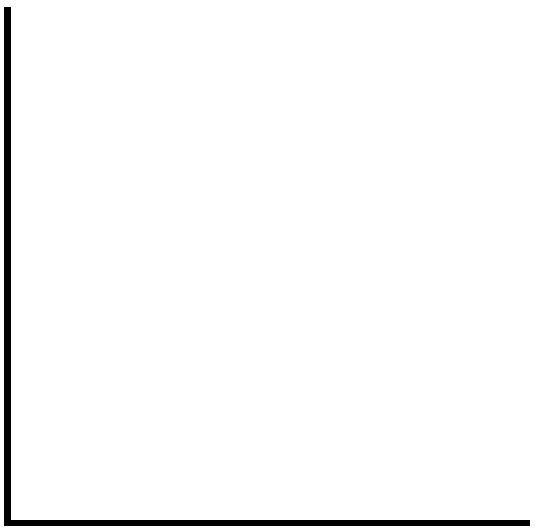
The quantum numbers have not been measured, but are simply assigned in accord with the quark model, in which the Ω_c^0 is the ssc ground state.

BIAGI 85B and ALBRECHT 92H see bumps in the $\Xi^- K^- \pi^+ \pi^+$ mass spectrum. FRABETTI 93 sees a bump in the $\Omega^- \pi^+$ spectrum but not in the $\Xi^- K^- \pi^+ \pi^+$ spectrum. FRABETTI 94H sees a bump in the $\Sigma^+ K^- K^- \pi^+$ spectrum. No doubt all the experiments are seeing the Ω_c^0, but statistics are low and further confirmation is desired.

Ω_c^0 MASS

VALUE (MeV)		EVTS	DOCUMENT ID		TECN	COMMENT
2704 ± 4 OUR AVERAGE			Error includes scale factor of 1.8. See the ideogram below.			
2699.9 ± 1.5 ± 2.5		42	[1] FRABETTI	94H	E687	γBe $\overline{E}_\gamma$=221 GeV
2705.9 ± 3.3 ± 2.0		10	[2] FRABETTI	93	E687	γBe $\overline{E}_\gamma$= 221 GeV
2719.0 ± 7.0 ± 2.5		11	[3] ALBRECHT	92H	ARG	$e^+ e^-$ ≈ 10.6 GeV
2740	±20	3	BIAGI	85B	SPEC	Σ^- Be 135 GeV/c

[1] FRABETTI 94H claims a signal of 42.5 ± 8.8 $\Sigma^+ K^- K^- \pi^+$ events. The background is about 24 events.
[2] FRABETTI 93 claims a signal of 10.3 ± 3.9 $\Omega^- \pi^+$ events above a background of 5.8 events.
[3] ALBRECHT 92H claims a signal of 11.5 ± 4.3 $\Xi^- K^- \pi^+ \pi^+$ events. The background is about 5 events.



Ω_c^0 mass (MeV)

Ω_c^0 DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\Sigma^+ K^- K^- \pi^+$	seen
Γ_2	$\Xi^- K^- \pi^+ \pi^+$	seen
Γ_3	$\Omega^- \pi^+$	seen
Γ_4	$\Omega^- \pi^- \pi^+ \pi^+$	not 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	γBe $\overline{E}_\gamma$=221 GeV

$\Gamma(\Xi^- K^- \pi^+ \pi^+)/\Gamma_{total}$ Γ_2/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

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
seen	10	FRABETTI	93	E687	γBe $\overline{E}_\gamma$= 221 GeV

$\Gamma(\Xi^- K^- \pi^+ \pi^+)/\Gamma(\Omega^- \pi^+)$ Γ_2/Γ_3

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<2.8	90	FRABETTI	93	E687	γBe $\overline{E}_\gamma$= 221 GeV

$\Gamma(\Omega^- \pi^- \pi^+ \pi^+)/\Gamma(\Omega^- \pi^+)$ Γ_4/Γ_3

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<1.6	90	FRABETTI	93	E687	γBe $\overline{E}_\gamma$= 221 GeV

Ω_c^0 REFERENCES

FRABETTI	94H	PL B338 106	+Cheung, Cumalat+	(FNAL E687 Collab.)
FRABETTI	93	PL B300 190	+Cheung, Cumalat, Dallapiccola+	(FNAL E687 Collab.)
ALBRECHT	92H	PL B288 367	+Cronstroem, Ehrlichmann, Hamacher+	(ARGUS Collab.)
BIAGI	85B	ZPHY C28 175	+	(CERN WA62 Collab.)