

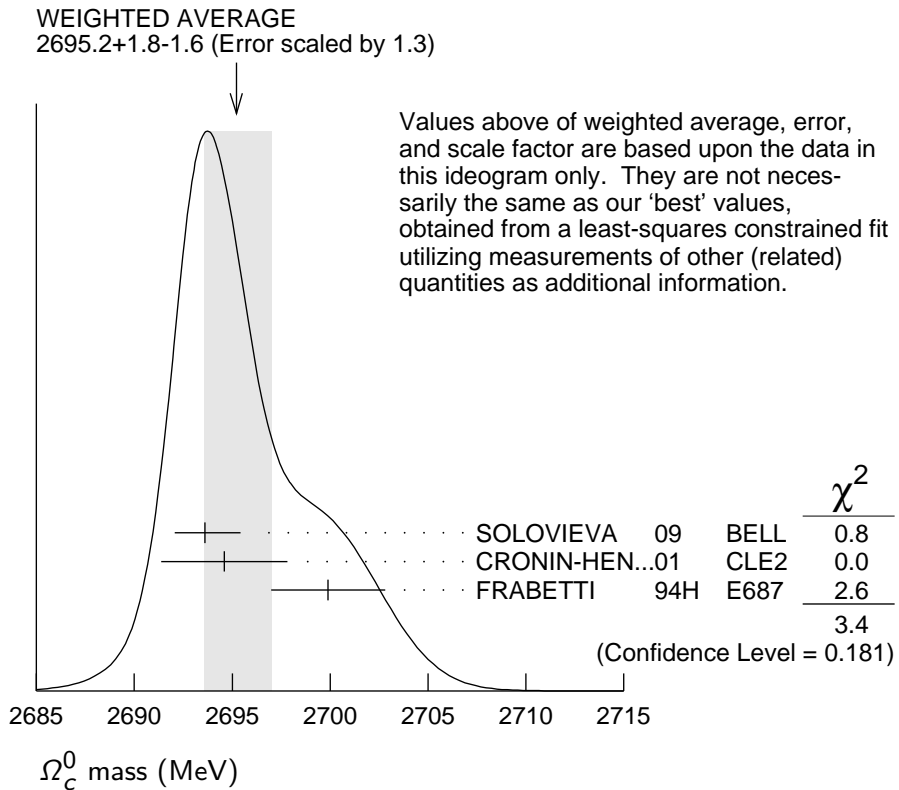


$$I(J^P) = 0(\frac{1}{2}^+) \text{ Status: } ***$$

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. No absolute branching fractions have been measured.

Ω_c^0 MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
2695.2 ± 1.7 OUR FIT	Error includes scale factor of 1.3.			
2695.2^{+1.8}_{-1.6} OUR AVERAGE	Error includes scale factor of 1.3. See the ideogram below.			
2693.6 ± 0.3 ^{+1.8} _{-1.5}	725	SOLOVIEVA 09	BELL	$\Omega^- \pi^+$ in $e^+ e^- \rightarrow \gamma(4S)$
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, $\bar{E}_\gamma = 221$ 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, $\bar{E}_\gamma = 221$ 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 $42.5 \pm 8.8 \Sigma^+ K^- K^- \pi^+$ events. The background is about 24 events.
³ FRABETTI 93 claims a signal of $10.3 \pm 3.9 \Omega^- \pi^+$ events above a background of 5.8 events.
⁴ ALBRECHT 92H claims a signal of $11.5 \pm 4.3 \Xi^- K^- \pi^+ \pi^+$ events. The background is about 5 events.

Ω_c^0 MEAN LIFE

VALUE (10^{-15} s)	EVTS	DOCUMENT ID	TECN	COMMENT
$268 \pm 24 \pm 10$	978	¹ AAIJ	18J LHCb	$p K^- K^- \pi^+$
• • •				We do not use the following data for averages, fits, limits, etc. • • •
$72 \pm 11 \pm 11$	64	LINK	03C FOCS	$\Omega^- \pi^+, \Xi^- K^- \pi^+ \pi^+$
55^{+13+18}_{-11-23}	86	ADAMOVICH	95B WA89	$\Omega^- \pi^- \pi^+ \pi^+, \Xi^- K^- \pi^+ \pi^+$
$86^{+27}_{-20} \pm 28$	25	FRABETTI	95D E687	$\Sigma^+ K^- K^- \pi^+$

¹ AAIJ 18J, with nearly five times more events than the previous three experiments combined, gets a lifetime that is nearly four times larger than the average of those experiments, $(69 \pm 12) \times 10^{-15}$ s. We go with the larger data sample.

Ω_c^0 DECAY MODES

Mode	Fraction (Γ_i/Γ)	Confidence level	
No absolute branching fractions have been measured. The following are branching <i>ratios</i> relative to $\Omega^- \pi^+$.			
Cabibbo-favored ($S = -3$) decays — relative to $\Omega^- \pi^+$			
Γ_1	$\Omega^- \pi^+$	DEFINED AS 1	
Γ_2	$\Omega^- \pi^+ \pi^0$	1.80 ± 0.33	
Γ_3	$\Omega^- \rho^+$	>1.3	90%
Γ_4	$\Omega^- \pi^- 2\pi^+$	0.31 ± 0.05	
Γ_5	$\Omega^- e^+ \nu_e$	2.4 ± 1.2	
Γ_6	$\Xi^0 \bar{K}^0$	1.64 ± 0.29	
Γ_7	$\Xi^0 K^- \pi^+$	1.20 ± 0.18	
Γ_8	$\Xi^0 \bar{K}^{*0}, \bar{K}^{*0} \rightarrow K^- \pi^+$	0.68 ± 0.16	
Γ_9	$\Xi^- \bar{K}^0 \pi^+$	2.12 ± 0.28	
Γ_{10}	$\Xi^- K^- 2\pi^+$	0.63 ± 0.09	
Γ_{11}	$\Xi(1530)^0 K^- \pi^+, \Xi^{*0} \rightarrow$	0.21 ± 0.06	
Γ_{12}	$\Xi^- \bar{K}^{*0} \pi^+$	0.34 ± 0.11	
Γ_{13}	$\Sigma^+ K^- K^- \pi^+$	<0.32	90%
Γ_{14}	$\Lambda \bar{K}^0 \bar{K}^0$	1.72 ± 0.35	

Ω_c^0 BRANCHING RATIOS

A few early but now obsolete measurements have been omitted. See K.A. Olive, *et al.* (Particle Data Group), Chinese Physics **C38** 070001 (2014).

$\Gamma(\Omega^- \pi^+ \pi^0)/\Gamma(\Omega^- \pi^+)$					Γ_2/Γ_1
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
1.80±0.33 OUR AVERAGE Error includes scale factor of 1.9.					
2.00±0.17±0.11	403	YELTON	18	BELL	$e^+e^- \rightarrow \Upsilon(4S)$, +higher
1.27±0.31±0.11	64	AUBERT	07AH	BABR	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\Omega^- \rho^+)/\Gamma(\Omega^- \pi^+ \pi^0)$					Γ_3/Γ_2
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
>0.71	90	¹ YELTON	18	BELL	$e^+e^- \rightarrow \Upsilon(4S)$, +higher

¹ This submode fraction is evaluated from a background-subtracted signal in a mass plot. Result ignores interference effects and systematic uncertainties, which YELTON 18 claim are both small.

$\Gamma(\Omega^- \pi^- 2\pi^+)/\Gamma(\Omega^- \pi^+)$					Γ_4/Γ_1
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
0.31±0.05 OUR AVERAGE					
0.32±0.05±0.02	108	YELTON	18	BELL	$e^+e^- \rightarrow \Upsilon(4S)$, +higher
0.28±0.09±0.01	25	AUBERT	07AH	BABR	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\Omega^- \pi^+)/\Gamma(\Omega^- e^+ \nu_e)$					Γ_1/Γ_5
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
0.41±0.19±0.04	11	AMMAR	02	CLE2	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\Xi^0 \bar{K}^0)/\Gamma(\Omega^- \pi^+)$					Γ_6/Γ_1
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
1.64±0.26±0.12	98	YELTON	18	BELL	$e^+e^- \rightarrow \Upsilon(4S)$, +higher

$\Gamma(\Xi^0 K^- \pi^+)/\Gamma(\Omega^- \pi^+)$					Γ_7/Γ_1
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
1.20±0.16±0.08	168	YELTON	18	BELL	$e^+e^- \rightarrow \Upsilon(4S)$, +higher

$\Gamma(\Xi^0 \bar{K}^{*0}, \bar{K}^{*0} \rightarrow K^- \pi^+)/\Gamma(\Xi^0 K^- \pi^+)$					Γ_8/Γ_7
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
0.57±0.10	95	¹ YELTON	18	BELL	$e^+e^- \rightarrow \Upsilon(4S)$, +higher

¹ This submode fraction is evaluated from a background-subtracted signal in a mass plot. Result ignores interference effects and systematic uncertainties, which YELTON 18 claim are both small.

$\Gamma(\Xi^- \bar{K}^0 \pi^+)/\Gamma(\Omega^- \pi^+)$					Γ_9/Γ_1
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
2.12±0.24±0.14	349	YELTON	18	BELL	$e^+e^- \rightarrow \Upsilon(4S)$, +higher

$\Gamma(\Xi^- K^- 2\pi^+)/\Gamma(\Omega^- \pi^+)$ Γ_{10}/Γ_1

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.63±0.09 OUR AVERAGE		Error includes scale factor of 1.4.		
0.68±0.07±0.03	278	YELTON	18	BELL $e^+e^- \rightarrow \Upsilon(4S)$, +higher
0.46±0.13±0.03	45	AUBERT	07AH	BABR $e^+e^- \approx \Upsilon(4S)$

 $\Gamma(\Xi(1530)^0 K^- \pi^+, \Xi^{*0} \rightarrow \Xi^- \pi^+)/\Gamma(\Xi^- K^- 2\pi^+)$ Γ_{11}/Γ_{10}

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.33±0.09	74	¹ YELTON	18	BELL $e^+e^- \rightarrow \Upsilon(4S)$, +higher

¹ This submode fraction is evaluated from a background-subtracted signal in a mass plot. Result ignores interference effects and systematic uncertainties, which YELTON 18 claim are both small.

 $\Gamma(\Xi^- \bar{K}^{*0} \pi^+)/\Gamma(\Xi^- K^- 2\pi^+)$ Γ_{12}/Γ_{10}

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.55±0.16	136	¹ YELTON	18	BELL $e^+e^- \rightarrow \Upsilon(4S)$, +higher

¹ This submode fraction is evaluated from a background-subtracted signal in a mass plot. Result ignores interference effects and systematic uncertainties, which YELTON 18 claim are both small.

 $\Gamma(\Sigma^+ K^- K^- \pi^+)/\Gamma(\Omega^- \pi^+)$ Γ_{13}/Γ_1

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
<0.32	90	17	YELTON	18	BELL $e^+e^- \rightarrow \Upsilon(4S)$, +higher

 $\Gamma(\Lambda \bar{K}^0 \bar{K}^0)/\Gamma(\Omega^- \pi^+)$ Γ_{14}/Γ_1

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
1.72±0.32±0.14	95	YELTON	18	BELL $e^+e^- \rightarrow \Upsilon(4S)$, +higher

 Ω_c^0 REFERENCES

AAIJ	18J	PRL 121 092003	R. Aaij <i>et al.</i>	(LHCb Collab.)
YELTON	18	PR D97 032001	J. Yelton <i>et al.</i>	(BELLE Collab.)
PDG	14	CP C38 070001	K. Olive <i>et al.</i>	(PDG Collab.)
SOLOVIEVA	09	PL B672 1	E. Solovieva <i>et al.</i>	(BELLE Collab.)
AUBERT	07AH	PRL 99 062001	B. Aubert <i>et al.</i>	(BABAR Collab.)
LINK	03C	PL B561 41	J.M. Link <i>et al.</i>	(FNAL FOCUS Collab.)
AMMAR	02	PRL 89 171803	R. Ammar <i>et al.</i>	(CLEO Collab.)
CRONIN-HEN...	01	PRL 86 3730	D. Cronin-Hennessy <i>et al.</i>	(CLEO Collab.)
ADAMOVICH	95B	PL B358 151	M.I. Adamovich <i>et al.</i>	(CERN WA89 Collab.)
FRABETTI	95D	PL B357 678	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
FRABETTI	94H	PL B338 106	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
FRABETTI	93	PL B300 190	P.L. Frabetti <i>et al.</i>	(FNAL E687 Collab.)
ALBRECHT	92H	PL B288 367	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
BIAGI	85B	ZPHY C28 175	S.F. Biagi <i>et al.</i>	(CERN WA62 Collab.)