

$T_{cc\bar{c}\bar{c}}(6900)^0$

$$I^G(J^{PC}) = 0^+(?^{?+})$$

was $X(6900)$

State incompatible with a $q\bar{q}$ structure. See the review on "Heavy Non- $q\bar{q}$ Mesons."

$T_{cc\bar{c}\bar{c}}(6900)^0$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
6914±11 OUR AVERAGE	Error includes scale factor of 1.6. See the ideogram below.		
6927± 9± 4	¹ HAYRAPETY...24	CMS	$pp \rightarrow J/\psi J/\psi X$
6910±10±10	² AAD	23BL ATLS	$pp \rightarrow J/\psi J/\psi X$
6886±11±11	³ AAIJ	20AY LHCB	$pp \rightarrow J/\psi J/\psi X$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
6960±50±30	⁴ AAD	23BL ATLS	$pp \rightarrow J/\psi \psi(2S) X$

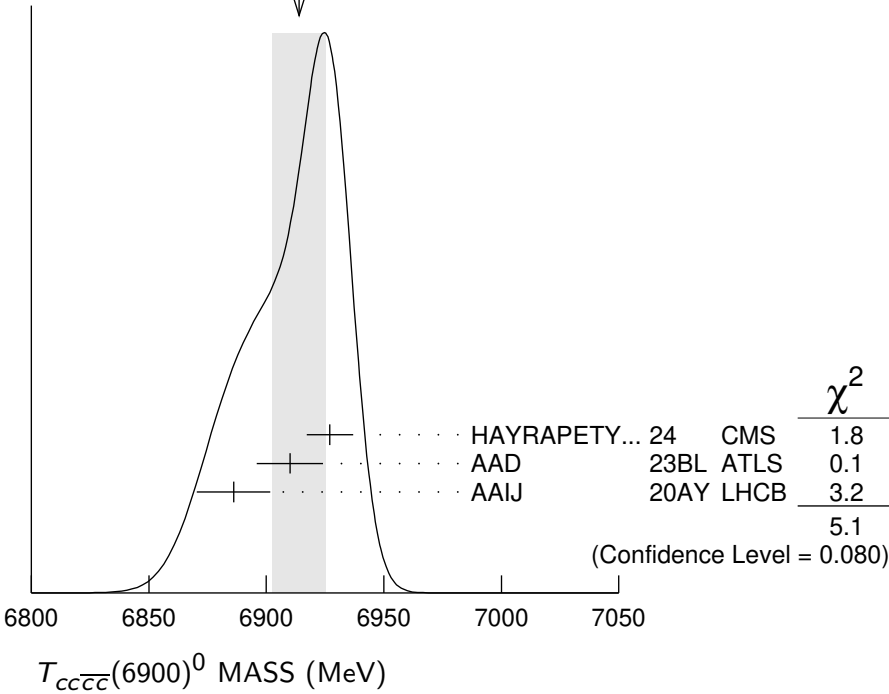
¹ In a model with three resonances described by interfering relativistic Breit-Wigner functions above background from non-resonant single and double parton scattering and a threshold enhancement. The other two resonances have masses $6652 \pm 10 \pm 12$, $7287^{+20}_{-18} \pm 5$ MeV and widths $124^{+32}_{-26} \pm 33$, $95^{+59}_{-40} \pm 19$ MeV, respectively.

² In a model with two resonances, one describing the broad structure above threshold (mass $6650 \pm 20^{+30}_{-20}$ MeV, width $440 \pm 50^{+60}_{-50}$ MeV) interfering with single parton scattering, and a non-interfering $T_{cc\bar{c}\bar{c}}(6900)$.

³ In a model where the broad structure above threshold interferes with non-resonant single parton scattering. Without interference the mass is $6905 \pm 11 \pm 7$ MeV.

⁴ Assuming a single resonance (could be another state). A 3σ signal is observed for an additional resonance with mass $7220 \pm 30^{+10}_{-40}$ MeV and width $90 \pm 60^{+60}_{-50}$ MeV.

WEIGHTED AVERAGE
6914±11 (Error scaled by 1.6)



$T_{cc\bar{c}}(6900)^0$ WIDTH

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
137± 21 OUR AVERAGE			
122 ⁺ _− 24 ⁺ _− 18	¹ HAYRAPETY...24	CMS	$pp \rightarrow J/\psi J/\psi X$
150± 30± 10	² AAD	23BL ATLS	$pp \rightarrow J/\psi J/\psi X$
168± 33± 69	³ AAIJ	20AY LHCB	$pp \rightarrow J/\psi J/\psi X$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
510±170 ⁺ _− 110 ⁺ _− 100	⁴ AAD	23BL ATLS	$pp \rightarrow J/\psi \psi(2S) X$

¹ In a model with three resonances described by interfering relativistic Breit-Wigner functions above background from non-resonant single and double parton scattering and a threshold enhancement. The other two resonances have masses $6652 \pm 10 \pm 12$, $7287^{+20}_{-18} \pm 5$ MeV and widths $124^{+32}_{-26} \pm 33$, $95^{+59}_{-40} \pm 19$ MeV, respectively.

² In a model with two resonances, one describing the broad structure above threshold (mass $6650 \pm 20^{+30}_{-20}$ MeV, width $440 \pm 50^{+60}_{-50}$ MeV) interfering with single parton scattering, and a non-interfering $T_{cc\bar{c}}(6900)$.

³ In a model where the broad structure above threshold interferes with non-resonant single parton scattering. Without interference the width is 80 ± 38 MeV.

⁴ Assuming a single resonance (could be another state). A 3σ signal is observed for an additional resonance with mass $7220 \pm 30^{+10}_{-40}$ MeV and width $90 \pm 60^{+60}_{-50}$ MeV.

$T_{cc\bar{c}\bar{c}}(6900)^0$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad J/\psi J/\psi$	seen

$T_{cc\bar{c}\bar{c}}(6900)^0$ BRANCHING RATIOS

$\Gamma(J/\psi J/\psi)/\Gamma_{\text{total}}$				Γ_1/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
seen	HAYRAPETY...24	CMS	$pp \rightarrow J/\psi J/\psi X$	
seen	AAD	23BL ATLS	$pp \rightarrow J/\psi J/\psi X$	
seen	AAIJ	20AY LHCB	$pp \rightarrow J/\psi J/\psi X$	

$T_{cc\bar{c}\bar{c}}(6900)^0$ REFERENCES

HAYRAPETY... 24	PRL 132 111901	A. Hayrapetyan <i>et al.</i>	(CMS Collab.)
AAD	23BL PRL 131 151902	G. Aad <i>et al.</i>	(ATLAS Collab.)
AAIJ	20AY SCIB 65 1983	R. Aaij <i>et al.</i>	(LHCb Collab.)