

$\chi_{b2}(3P)$

$$I^G(J^{PC}) = 0^+(2^{++})$$

Observed in the radiative decay to $\Upsilon(3S)$, therefore $C = +$. J needs confirmation.

$\chi_{b2}(3P)$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
10524.02 ± 0.57 ± 0.53	¹ SIRUNYAN	18N CMS	$pp \rightarrow \gamma \mu^+ \mu^- X$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
10530 ± 5 ± 9	² AAD	12A ATLS	$pp \rightarrow \gamma \mu^+ \mu^- X$

¹ Systematic error includes an additional 0.5 MeV for the uncertainty on the $\Upsilon(3S)$ mass. Also measures $m_{\chi_{b2}(3P)} - m_{\chi_{b1}(3P)} = 10.60 \pm 0.64 \pm 0.17$ MeV. A total of 372 $\chi_{b1}(3P)$ and $\chi_{b2}(3P)$ events was observed.

² The mass barycenter of the merged lineshapes from the $J = 1$ and 2 states.

$\chi_{b2}(3P)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad \Upsilon(3S)\gamma$	seen

$\chi_{b2}(3P)$ BRANCHING RATIOS

$\Gamma(\Upsilon(3S)\gamma)/\Gamma_{\text{total}}$	Γ_1/Γ		
VALUE	DOCUMENT ID	TECN	COMMENT
seen	SIRUNYAN	18N CMS	$pp \rightarrow \gamma \mu^+ \mu^- X$

$\chi_{b2}(3P)$ REFERENCES

SIRUNYAN	18N	PRL 121 092002	A.M. Sirunyan <i>et al.</i>	(CMS Collab.)
AAD	12A	PRL 108 152001	G. Aad <i>et al.</i>	(ATLAS Collab.)