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Title:	Observation of the Radiative Decays of $Y(1S)$ to $\chi_{c1}$
Authors:	Bhardwaj, V. (/jspui/browse?type=author&value=Bhardwaj%2C+V.)
Keywords:	Atomic physics Taxonomy Belle detectors
Issue Date:	2020
Publisher:	American Physical Society
Citation:	Physical Review Letters 124(12).
Abstract:	We report the first observation of the radiative decay of the $Y(1S)$ into a charmonium state. The significance of the observed signal of $Y(1S) \rightarrow \gamma \chi_{c1}$ is 6.3 standard deviations including systematics. The branching fraction is calculated to be $B[Y(1S) \rightarrow \gamma \chi_{c1}] = [4.7 + 2.4 - 1.8 (\text{stat}) + 0.4 - 0.5 (\text{sys})] \times 10^{-5}$ . We also searched for $Y(1S)$ radiative decays into $\chi_{c0}$ , $2$ and $\eta_{c1}(1S, 2S)$ , and set upper limits on their branching fractions. These results are obtained from a $24.9 \text{ fb}^{-1}$ data sample collected with the Belle detector at the KEKB asymmetric-energy $e^+e^-$ collider at a center-of-mass energy equal to the $Y(2S)$ mass using $Y(1S)$ tagging by the $Y(2S) \rightarrow Y(1S) \pi^+ \pi^-$ transitions.
Description:	Only IISERM authors are available in the record.
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