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$\eta_c(1S)$ and $\eta_c(2S)$ production at the LHC

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We present results of calculations of cross sections for production of $\eta_c(1S)$ and $\eta_c(2S)$ for the LHC for $\sqrt{s} = 7, 8, 13$ TeV.

The calculations are performed within k_t -factorization approach for different unintegrated gluon distributions from the literature.

Some of UGDFs include saturation effects.

We discuss effect of the transition $g^* g^* \rightarrow \eta_c$ form factors obtained from $c\bar{c}$ wave functions.

The results are compared with existing LHCb data for $\eta_c(1S)$.

A range of x_1, x_2 and k_{1t}, k_{2t} will be discussed.

A comment on UGDFs will be made.

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