## Higgs boson decay to charmonia via *c*-quark fragmentation

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We calculate the decay branching fractions of the Higgs boson to  $J/\psi$  and  $\eta_c$  via the charm-quark fragmentation mechanism for the color-singlet and color-octet states in the framework of non-relativistic QCD. The decay rates are governed by the charm-quark Yukawa coupling, unlike the decay  $H \rightarrow J/\psi + \gamma$ , which is dominated by the  $\gamma^*$ - $J/\psi$  mixing.

We find that the decay branching fractions can be about  $2 \times 10^{-5}$  for  $H \to c\bar{c} + J/\psi$ , and  $6 \times 10^{-5}$  for  $H \to c\bar{c} + \eta_c$ . We comment on the perspective of searching for the Higgs boson to  $J/\psi$  transition at the High-Luminosity LHC for testing the charm-quark Yukawa coupling.

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