

# Open charm contributions to the E1 transitions of $\psi(3686)$ and $\psi(3770) \rightarrow \gamma\chi_{cJ}$

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The E1 transitions of  $\psi(3686)$  and  $\psi(3770) \rightarrow \gamma\chi_{cJ}$  are investigated in a non-relativistic effective field theory (NREFT) where the open charm effects are included systematically as the leading corrections. It also allows a self-consistent inclusion of the S-D mixing in the same framework. It shows that the open charm contributions are essential for understanding the significant deviations of the non-relativistic leading order calculations from the experimental data.

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