

High Energy Physics - Experiment

Branching fraction measurements of χ_{c0} and χ_{c2} to $\pi^0\pi^0$ and $\eta\eta$

The [BESIII Collaboration](#)*(Submitted on 29 Jan 2010 (v1), last revised 12 Feb 2010 (this version, v2))*

Using a sample of 1.06×10^8 ψ' decays collected by the BESIII detector, χ_{c0} and χ_{c2} decays into $\pi^0\pi^0$ and $\eta\eta$ are studied. The branching fraction results are $\text{Br}(\chi_{c0} \rightarrow \pi^0\pi^0) = (3.23 \pm 0.03 \pm 0.23 \pm 0.14) \times 10^{-3}$, $\text{Br}(\chi_{c2} \rightarrow \pi^0\pi^0) = (8.8 \pm 0.2 \pm 0.6 \pm 0.4) \times 10^{-4}$, $\text{Br}(\chi_{c0} \rightarrow \eta\eta) = (3.44 \pm 0.10 \pm 0.24 \pm 0.2) \times 10^{-3}$, and $\text{Br}(\chi_{c2} \rightarrow \eta\eta) = (6.5 \pm 0.4 \pm 0.5 \pm 0.3) \times 10^{-4}$, where the uncertainties are statistical, systematic due to this measurement, and systematic due to the branching fractions of $\psi' \rightarrow \gamma\chi_{cJ}$, respectively. The results provide information on the decay mechanism of χ_{cJ} states into pseudoscalars.

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