High Energy Physics - Experiment

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

The BESIII Collaboration

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Using a sample of 1.06×10^8 $\psi^{\prime}$ 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 $Br(\chi_{c0}\to\pi^0\pi^0)=(3.23\pm 0.03\pm0.23 \pm 0.14)\times 10^{-3}$, $Br(\chi_{c2}\to\pi^0\pi^0)=(8.8\pm 0.2\pm 0.6\pm0.4)\times 10^{-4}$, $Br(\chi_{c0}\to\eta\eta)=(3.44\pm 0.10\pm0.24 \pm0.2)\times 10^{-3}$, and $Br(\chi_{c2}\to\eta\eta)=(6.5\pm 0.4\pm 0.5\pm 0.3)\times 10^{-4}$, where the uncertainties are statistical, systematic due to this measurement, and systematic due to the branching fractions of $\psi^{\prime}\to\gamma\chi_{cJ}$, respectively. The results provide information on the decay mechanism of χ_c states into pseudoscalars.

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