

Erratum: Search for new hadronic decays of h_c and observation of $h_c \rightarrow p\bar{p}\eta$



The BESIII collaboration

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ABSTRACT: A search for the hadronic decays of the h_c meson to the final states $p\bar{p}\pi^+\pi^-\pi^0$, $p\bar{p}\eta$, and $p\bar{p}\pi^0$ via the process $\psi(3686) \rightarrow \pi^0 h_c$ is performed using $(4.48 \pm 0.03) \times 10^8$ $\psi(3686)$ events collected with the BESIII detector. The decay channel $h_c \rightarrow p\bar{p}\eta$ is observed for the first time with a significance greater than 5σ and a branching fraction of $(6.41 \pm 1.74 \pm 0.53 \pm 1.00) \times 10^{-4}$, where the uncertainties are statistical, systematic, and that from the branching fraction of $\psi(3686) \rightarrow \pi^0 h_c$. Strong evidence for the decay $h_c \rightarrow p\bar{p}\pi^+\pi^-\pi^0$ is found with a significance of 4.9σ and a branching fraction of $(3.84 \pm 0.83 \pm 0.69 \pm 0.58) \times 10^{-3}$. The significances include systematic uncertainties. No clear signal of the decay $h_c \rightarrow p\bar{p}\pi^0$ is found, and an upper limit of 6.59×10^{-4} on its branching fraction is set at the 90% confidence level.

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