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Role of the N(1535) in the Λ_c -> $\bar{k}^\circ$ η p decay

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The nonleptonic weak decay of Lambda_c->K0bar eta p is analyzed from the viewpoint of probing the N(1535) resonance, which has a big decay branching ratio to eta N. Up to an arbitrary normalization, the invariant mass distribution of eta p is calculated with both the chiral unitary approach and an effective Lagrangian model. Within the chiral unitary approach, the N(1535) resonance is dynamically generated from the final-state interaction of mesons and baryons in the strangeness zero sector. For the effective Lagrangian model, we take a Breit-Wigner formula to describe the distribution of the N(1535) resonance. It is found that the behavior of the N(1535) resonance in the Lambda_c−>K0bar N(1535)>K0bar eta p decay within the two approaches is different. The proposed Lambda_c decay mechanism can provide valuable information on the properties of the N(1535) and can in principle be tested by facilities such as BEPC II and SuperKEKB.

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