

Rare and forbidden decays of D^0 meson.

We report the observation of the rare charm decay $D^0 \rightarrow K^- \pi^+ e^+ e^-$, a search for nine lepton-number-violating and three lepton-flavor-violating neutral charm decays of the type $D^0 \rightarrow h^- h'^+ \ell^+ \ell'^-$, and $D^0 \rightarrow h^- h'^+ \ell^+ \ell'^-$, and a search for seven lepton-number-violating decays of the type $D^0 \rightarrow X^0 e^\pm \mu^\mp$, where h and h' represent a K or π meson, ℓ and ℓ' an electron or muon, and X^0 a π^0 , K_S^0 , K^{*0} , ρ^0 , ϕ , ω , or η meson. The results are based on 468 fb^{-1} of $e^+ e^-$ collision data collected at or close to the $\Upsilon(4S)$ resonance with the BaBar detector at the SLAC National Accelerator Laboratory.

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