

Search for the rare decay $D^0 \rightarrow \gamma\gamma$ and improved measurement of $D^0 \rightarrow \pi^0\pi^0$

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We present preliminary results of the search for the doubly-radiative decay $D^0 \rightarrow \gamma\gamma$ and the measurement of the branching fraction of its associated background $D^0 \rightarrow \pi^0\pi^0$ in a data sample corresponding to an integrated luminosity of $\sim 470\text{fb}^{-1}$ collected with the BaBar detector at the PEP-II asymmetric e^+e^- collider at SLAC. The long-range, FCNC $\gamma\gamma$ decay provides a test for physics beyond the standard model.

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