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Search for an Axion-Like Particle in $B \rightarrow K a$, $a \rightarrow \gamma \gamma$ at BABAR

Many extensions of the Standard Model include the possibility of light new particles, such as axions or dark matter candidates. These scenarios can be probed using the large data sets collected by B -factories, complementing measurements performed at the LHC. We report on a search for an Axion-like particle (ALP), a , produced in the Flavor-Changing Neutral-Current decay $B \rightarrow K a$, with $a \rightarrow \gamma \gamma$, which is expected to be competitive with the corresponding Standard-Model electroweak processes. This search, performed by using a dataset of about 470 million $B \bar{B}$ pairs collected by the BABAR experiment at the PEP-II $B \bar{B}$ collider, is sensitive to ALP masses below 4.78 GeV.

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