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Search for invisible decay of a dark photon produced in e^+e^- collisions at BaBar

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We report on a search for single-photon events in 53 fb^{-1} of e^+e^- collision data collected with the BaBar detector at the PEP−II B−factory. We look for events with a single high−energy photon and a large missing momentum and energy, consistent with pr
1 particle A' through the process e^+e^- \to \gamma A',A' \to invisible. Such particles, referred to as "dark photons", are motivated by
\to e^+e^- for a dark photon with a mass lower than 8 GeV. In particular, our limits exclude the values of the A'$
coupling suggested by the
dark-photon interpretation of the muon (g-2) anomaly, as well as a broad range of parameters.

Primary author: Prof. PORTER, Frank (Caltech)

Co-author: BABAR COLLABORATION, - (-)

Presenter: Dr MIYASHITA, Tomonari (California Institute of Technology)

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