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Search a dark photon at BABAR

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We present a search for a dark photon (A'), a new light gauge boson introduced by dark sector models, using data collected by the BABAR experiment. The dark photon is identified through its decay into a lepton pair in the reaction $e^+e^- \rightarrow \gamma A'$, $A' \rightarrow l^+l^-$ ($l=e,\mu$). We observe no statistically significant signal, and we set 90% confidence level upper limits on the mixing strength between the photon and dark photon at the level of $10^{-3} - 10^{-4}$ for dark photon masses in the range 0.02 - 10.2 GeV.

Oral or Poster Presentation

Oral

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