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Search for muonic dark force at BABAR

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Many models of New Physics postulate the existence new gauge bosons mediating interactions between “dark sectors” and the Standard Model. We present a search for a dark boson Z' coupling only to the second and third generation of leptons in the reaction $e^+e^- \rightarrow \mu^+\mu^-Z'$, $Z' \rightarrow \mu^+\mu^-$ with the full BABAR dataset. No significant signal is observed and limits improving upon bounds derived from neutrino experiments are set.

Primary author: Prof. PORTER, Frank (Caltech)

Co-author: BABAR COLLABORATION, - (-)

Presenter: ECHENARD, Bertrand (Caltech)

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