

Abstract Submitted
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Searching for Dark Photons in the SeaQuest Experiment¹

MICHELLE MESQUITA DE MEDEIROS, Argonne National Laboratory — The SeaQuest/E906 experiment at Fermilab was designed to study anti-quark distributions in the nucleon and nuclei by using Drell-Yan interactions between the 120 GeV proton beam from the Main Injector and different fixed targets. The front face of an iron magnet placed next to the targets serves as a beam dump while the muon pairs generated from these interactions are detected downstream. In the absorption process in the dump many particles are produced, including, possibly, dark photons through processes such as proton bremsstrahlung and eta decay. The dark photons could escape the dump and then decay into dimuons after travelling a certain distance determined by the coupling to the EM sector. The decay vertex is therefore significantly displaced, allowing for a very low background search. By detecting the dimuons with the SeaQuest spectrometer and analyzing their invariant mass distribution, one can search for signatures of these exotic processes. The present status of the dark photon search analysis will be presented.

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