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Searching for Dark Photons with the SeaQuest Spectrometer SHO UEMURA, Los Alamos National Laboratory, SEAQUEST COLLABORATION — The existence of a dark sector, containing families of particles that do not couple directly to the Standard Model, is motivated as a possible model for dark matter. A "dark photon" – a massive vector boson that couples weakly to electric charge – is a common component of dark sector models. The SeaQuest spectrometer at Fermilab is designed to detect dimuon pairs produced by the interaction of a 120 GeV proton beam with a rotating set of thin fixed targets. An iron-filled magnet downstream of the target, 5 meters in length, serves as a beam dump. The SeaQuest spectrometer is sensitive to dark photons that are mostly produced in the beam dump and decay to dimuons, and a SeaQuest search for dark sector particles was approved as Fermilab experiment E1067. As part of E1067, a displaced-vertex trigger was built, installed and commissioned this year. This trigger uses two planes of extruded scintillators to identify dimuons originating far downstream of the target, and is sensitive to dark photons that travel deep inside the beam dump before decaying to dimuons. This trigger will be used to take data parasitically with the primary SeaQuest physics program. In this talk I will present the displaced-vertex trigger and its performance, and projected sensitivity from future running.

Sho Uemura
Los Alamos National Laboratory

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