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Projections for Dark Photon Searches at Mu3e YIMING ZHONG, State Univ of NY- Stony Brook, BERTRAND ECHENARD, California Institute of Technology, ROUVEN ESSIG, State Univ of NY- Stony Brook — We show that dark photons (A') with masses 10-80 MeV can be probed in the decay $\mu^+ \to e^+\nu_e\bar{\nu}_\mu A'$, $A' \to e^+e^-$, with the upcoming Mu3e experiment at the Paul Scherrer Institute (PSI) in Switzerland. With an expected 10^{15} (5.5×10^{16}) muon decays in 2015-2016 (2018 and beyond), Mu3e has the exciting opportunity to probe a substantial fraction of currently unexplored dark photon parameter space, probing kinetic-mixing parameter, ϵ, as low as $\epsilon^2 \sim 10^{-7}$ (10^{-8}). No modifications of the existing Mu3e setup are required.

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