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Searching for a Dark Photon at JLab

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Low energy but high intensity electron beams offer a unique opportunity to probe physics beyond the standard model. While high luminosity experiments are usually envisioned as providing an indirect probe of TeV-scale new physics, recent experiments proposed at Jefferson Laboratory are focused on using inverse attobarn datasets to gain direct evidence for new GeV-scale resonances. These GeV-scale particles have small enough couplings to have not been seen at previous high luminosity experiments such as the B-factories, but large enough couplings to evade bounds from beam dump and astrophysical probes. New physics at the GeV-scale has a variety of different motivations, from indirect and direct detection of dark matter, to the anomalous magnetic moment of the muon, to models of supersymmetry breaking, and in many cases GeV-scale physics and TeV-scale physics are intertwined. But regardless of the motivation, the CEBAF and ERL accelerators at Jefferson Laboratory are ideal platforms to launch the next generation of fixed-target experiments searching for weakly-coupled, GeV-scale resonances. In this talk, I will summarize the motivation for GeV-scale physics and the reasons why JLab is uniquely positioned to discover a "dark photon". I will then highlight three experimental efforts at JLab: the APEX experiment in CEBAF Hall A which has just completed a test run; the proposed HPS experiment in CEBAF Hall B; and the proposed DarkLight experiment using the energy recovery linac.