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Physics reach at JLab with the 12 GeV upgrade

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The Continuous Electron Beam Accelerator Facility (CEBAF) and associated experimental equipment at Jefferson Lab comprise a unique facility for nuclear physics research whose upgrade has been just completed. The upgraded facility accelerates electron beams to 11 GeV for experiments in the existing Halls A, B and C. In addition, a 12 GeV beam is provided to a new experimental Hall D to generate a 9 GeV tagged photon beam. This upgrade will quantitatively address the nature of confinement and an era of nuclear femtography through precision measurements of the spectrum and structure of hadrons comprised of light quarks and gluons. This facility also provides new opportunities relevant to neutrino oscillation physics, “dark photon” searches, and precision tests of the standard model.