

The meson spectroscopy program using the Forward Tagger with CLAS12 at Jefferson Lab

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Collaboration

CLAS

Abstract content

The 12 GeV upgrade to the Continuous Electron Beam Accelerator Facility (CEBAF) will enable a new generation of experiments in hadronic nuclear physics at Jefferson Lab, seeking to address fundamental questions in QCD. For example, confirming the existence of exotic states, suggested by both quark models and lattice calculations, would allow gluonic degrees of freedom to be explored, and may help explain the role played by gluons in the QCD interaction. In Experimental Hall B, meson spectroscopy (the MesonEx experiment) will be performed using low Q^2 electron scattering to produce quasi-real photons. The scattered electron is detected at small angles by the Forward Tagger device, determining the properties of the photon on an event-by-event basis. This technique has notable advantages over real photon beams, and over hadronic beam experiments, where most experimental data exists. The development of the Forward Tagger by the INFN Genova group, and the proposed MesonEx experiment, will be the focus of the work presented.

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