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The CLAS12 Forward Tagger Detector at Jefferson Lab

TALHA REHMAN, Berea College, DR. RAFFAELLA DE VITA, DR. MARCO BATTAGLIERI, INFN Genova, FORWARD TAGGER - CLAS12 COLLABORATION — The CLAS12-Forward Tagger is designed to detect electrons produced by the interaction of CEBAF 11 GeV electron beam with the target. This detector is composed by an electromagnetic calorimeter (FT-Cal), based on lead tungstate scintillating crystals, a hodoscope (FT-Hodo), based on plastic scintillator tiles and two layers of Micromegas trackers (FT-Trck). The Forward Tagger is designed to measure electrons scattered between 2.5 and 5 degrees. Before the installation in the Hall-B of Jefferson Lab, the FT has been assembled in laboratory and is currently tested with cosmic rays. The calorimeter response is being measured to perform the energy calibration of the system. Cosmic rays crossing the calorimeter crystals release on average a fixed amount of energy that can be used to determine the absolute calibration of the system. The stability of system response can be monitored by studying the variation of calibration constants as a function of time. The results obtained in a few weeks of operation indicates that the energy response of the calorimeter is consistent with expectations and does not show significant time dependence.

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