

Abstract Submitted
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Flash ADC readout of the GlueX forward electromagnetic calorimeter MIHAJLO KORNICER, Indiana University, GLUEX COLLABORATION — The GlueX experiment at Jefferson Lab will use a 9 GeV high-rate ($10^7 - 10^8/s$) photon beam, incident on a liquid hydrogen target, to search for hybrid-meson production in the mass range of 1.5-2.5 GeV/ c^2 . Abundant photon production from neutral meson decays is expected in the decay chains of hybrid mesons, which will result in several photons in the forward region. The forward electromagnetic calorimeter (FCAL) of the GlueX detector is designed to reconstruct final state photons using an array of 2800 lead-glass blocks. The FCAL will employ flash analog-to-digital converter (FADC) technology to measure both deposited energy and photon arrival time using pulses from FEU-84-3 photomultiplier tubes. A real-time sum of the total calorimeter energy will be used as an input to the trigger. Timing information from individual crystals will be used to suppress the expected high-level of electromagnetic background from the photon beam and forward-going charged particles. We present the performance characteristics of the calorimeter readout based on simulation and data taken with a prototype 12-bit, 250 MHz flash ADC.

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