

Abstract Submitted
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Central Time -Of-Flight detector for CLAS12 Hall-B upgrade¹

VITALY BATURIN, JLAB — The time-of-flight system for CLAS12 at Hall-B of the Thomas Jefferson National Accelerator Facility will have a refurbished forward-angle detector and a new barrel scintillation detector for the time-of-flight measurements in the central region inside the superconducting 5 T-solenoid. The 92 cm-long barrel with the inner diameter 50 cm is formed by 48 scintillators of a trapezoidal cross-section about 3×3 cm². Each scintillator is readout by R2083 PMTs from both upstream and downstream sides via a novel focusing light guides 1 m- and 1.6 m-long respectively. Both PMTs of each counter are enclosed into a novel dynamical magnetic shield that allows PMT performance at 1000 G-solenoid fringe fields. The expected timing resolution of this detector is 60 ps that allows pion-kaon and pion-proton separation at 3.3. sigma level up to 0.64 GeV/c and 1.25 GeV/c respectively.

¹Thomas Jefferson National Accelerator Facility.

Vitaly Baturin
JLAB

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