

Abstract Submitted  
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**Optimization of EJ-200 Scintillators' Optical Surface Area for the GlueX Start Counter** ANTHONY LLODRA, ERIC POOSER, Florida Intl Univ, GLUEX COLLABORATION — For the GlueX Start Counter to operate at maximum efficiency a time resolution of  $<350\text{ps}$  is required to identify the electron beam buckets produced by the Continuous Electron Beam Accelerator Facility at Jefferson Lab. Thirty EJ-200 machined scintillator paddles were utilized for the Start Counter due to its fast decay time of 2 ns, long attenuation length, and high light output. The geometry of these paddles consists of a long straight section, a bend section, and a tapered nose section. Over a period of three months, five prototypes were closely monitored for degradation at Florida International University. Fifty scintillators were machined in June of 2014. However, the initial surface quality did not meet our specifications. After several polishing trials, a polishing procedure was established which resulted in an improvement of the overall surface quality and subsequently a vast improvement in time resolution. The optimization of the scintillators optical surface quality and the physical properties of the scintillator paddles will be discussed. This work was supported in part by DoE contracts DE-FG02-99ER41065 and DE-AC05-06OR23177.

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