

Abstract Submitted
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Modified M20 Beam Position Monitor Testing¹ JESSICA KOROS, Florida State University, JOHN MUSSON², Thomas Jefferson National Accelerator Facility — Beam position monitors (BPMs) are used to measure lateral beam position. Two pairs of modified wire BPMs are being evaluated for installation into the injector at Jefferson Lab (JLab). The BPMs were coated with a Non-Evaporable Getter (NEG) to aid in pumping at the electron gun, as an ultra-high vacuum is required to protect the gun and to avoid scattering the beam. Beam in the injector has a large diameter, allowing extraction of second moments to give information about beam profile and emittance. The purpose of this project is to determine the effects of NEG coating on the BPMs and to calculate second moments from beam models on the Goubau Line (G-Line). Using the G-Line, scans of the BPMs were taken before and after NEG coating. Each scan produced an electrical field map, which characterizes properties of the BPM, including scale factors and coupling. Second moments were calculated using superposition of previous scan data, and verification of this method was attempted using several beam models. Results show the BPMs responded well to NEG and that measurement of second moments is possible. Once the BPMs are installed, they will enhance gun vacuum and enable monitoring of shape and trajectory of the beam as it exits the electron gun to ensure quality beam for experiments.

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