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6.40 An Ion Beam System for Absolute Calibration of Neutral Particle Detectors for C-2W

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A high-confinement operating regime with plasma lifetimes significantly exceeding previous empirical scaling laws was recently obtained by combining plasma gun edge biasing and Neutral Beam Injection in the C-2U field-reversed configuration (FRC) experiment [1]. Several diagnostics used on the C-2U device to measure fast neutral flux have been relatively calibrated, including neutral particle analyzers [2] (NPA) and neutral particle bolometers [3] (NPB). However, absolute calibration is required to take full advantage of these instruments' capabilities for the C-2W experiment. A Calibration Ion Beam (CIB) system has been constructed for this purpose and here we present performance characteristics of this device as well as calibration results for neutral particle detectors. [1] M. W. Binderbauer, et al., Physics of Plasmas 22, 056110 (2015). [2] R. Clary, et al., Review of Scienti

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