

Abstract Submitted  
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**Identifying and Correcting Potential Sources of Experimental Error in HBT-EP Diagnostic Equipment**<sup>1</sup> DANIEL WOODMAN, LCDR ROYCE JAMES, US Coast Guard Academy, MICHAEL MAUEL, DAVID MAUER, JEFFREY LEVESQUE, GERALD NAVRATIL, NICHOLAS RIVERA, Columbia University — Successful modeling and implementation of diagnostic and support equipment must be carefully considered in order to minimize external interferences and experimental error. Several approaches to minimize diagnostic errors have been implemented at the High Beta Tokamak-Extended Pulse (HBT-EP) including re-cabling diagnostics to reduce electromagnetic interference (EMI), updating the HBT-EP ignitron Spice model to ensure accurate pulsed-power simulations, and determining non-ideal parameters of a transformer component in a proposed bias-probe experiment. Progress on recabling using twisted-pair wire for sensors adjacent to the chamber to reduce EMI; the design of the new Spice ignitron to replace the 1990 legacy model; plus results of a quantitative frequency-dependence analysis of a three-phase, step-down transformer recapitalized as a one-phase, step-up transformer consisting of a series of cascaded windings; are among the efforts to reduce systematic error during HBT-EP operations, that will be reported.

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