

Final Technical Report for DoE Grant No. DE-FG02-09ER55011

“Feasibility Study for a Plasma Dynamo Facility to Investigate Fundamental Processes in Plasma Astrophysics”

DoE Program Manager: Michael D. Crisp

Period of Performance: 2/15/09 – 2/14/11

Principal Investigator: Cary B. Forest, Professor of Physics at the University of Wisconsin-Madison

Total Amount of Award: \$30,000 for equipment purchases

UW-Madison Project Number: 144PRJ23CP

The scientific equipment purchased on this funding was used on the Plasma Dynamo Prototype Experiment as part of Professor Forest’s feasibility study for determining if it would be worthwhile to propose building a larger plasma physics experiment to investigate various fundamental processes in plasma astrophysics.

The initial research on the Plasma Dynamo Prototype Experiment was successful so Professor Forest and Professor Ellen Zweibel at UW-Madison submitted an NSF Major Research Instrumentation proposal titled “ARRA MRI: Development of a Plasma Dynamo Facility for Experimental Investigations of Fundamental Processes in Plasma Astrophysics.” They received funding for this project and the Plasma Dynamo Facility also known as the “Madison Plasma Dynamo Experiment” was constructed. This experiment achieved its first plasma in the fall of 2012 and U.S. Dept. of Energy Grant No. DE-SC0008709 “Experimental Studies of Plasma Dynamos,” now supports the research at \$350,000 per year.

So this grant was very successful.

Thank you to the U.S. of Energy Office of Fusion Energy Sciences for supporting this research at the University of Wisconsin-Madison.