

Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Installation of center disk baffle into Madison Dynamo Experiment vessel¹ M.M. CLARK, M.D. NORBERG, N.Z. TAYLOR, J.P. WALLACE, C.B. FOREST, University of Wisconsin - Madison — The Madison Dynamo Experiment (MDE) comprises a 1 m diameter spherical chamber that contains a turbulent flow of liquid sodium driven by two counter rotating impellers. One of the goals of the MDE is to observe a magnetic field grow at the expense of kinetic energy in the liquid sodium flow. It has been found that turbulence in the MDE plays a significant and solely detrimental role in the generation of magnetic fields. The installation of an equatorial baffle and the three rotatable vanes in each hemisphere resulted in a reduction of large scale eddies in the flow and enhanced field generation. However, no self-excited field was observed. This Poster will present recent modifications made to the experiment consisting of installing a copper disk baffle in the center of the spherical vessel. The design and installation of the structure will be illustrated and discussed. Results from before and after the center disk baffle installation will be shown.

¹Supported by NSF and DoE.

M.M. Clark
University of Wisconsin - Madison

Date submitted: 12 Jul 2013

Electronic form version 1.4