

Abstract Submitted
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Ultrasonic Doppler Velocimetry Measurements on the Madison Dynamo Experiment C.M. JACOBSON, C.B. FOREST, R.D. KENDRICK, M.D. NORBERG, C.A. PARADA, E.J. SPENCE, University of Wisconsin-Madison, MADISON DYNAMO EXPERIMENT TEAM — Ultrasonic Doppler Velocimetry (UDV) is used to measure components of the velocity field in the dimensionally-identical water version of the Madison Dynamo Experiment. Both the shape and magnitude of the velocity field must be well understood to predict whether the magnetic field will grow or decay. Probe assemblies with a protective silicon rubber transmission plate have been developed to house high-temperature transducers. The probes have been installed in newly-opened ports on the water experiment. The transducers measure the velocity of neutral-buoyancy seed particles, and are oriented such that ultrasonic reflections from the experiment walls and impellers are minimized. UDV measurements are assessed via comparison with Laser Doppler Velocimetry measurements taken at similar positions.

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