

Abstract Submitted  
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**Learning about dynamos in nature from experiments in Na, LN<sub>2</sub>, H<sub>2</sub>O and LHe<sup>1</sup>** DANIEL LATHROP, University of Maryland — The geodynamo and solar dynamo occur at parameter values that cannot be captured entirely with theory, simulations or experiments. Experiments can offer realistic effects of rotation and turbulence on MHD and fluid flows. Our group has been exploring turbulent rotating flows in liquid sodium, liquid Nitrogen, superfluid helium, or water. After reviewing the summary observations, I'll argue three main points: (1) Systems with a very small Ekman number (very rapid rotation) are highly oscillatory. (2) The high magnetic Reynolds number states (state where resistivity is negligible) are determined by a competition of magnetic field generation and reconnection. (3) The magneto-rotational instability and shear instabilities are not exclusive.

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