

Abstract Submitted
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Field-dependent thermal transfer in magnetic fluids JUN HUANG, ZHENYU ZHOU, GEOFF HUSTON, WEILI LUO, Department of Physics, University of Central Florida — The temperature gradient across a quasi one-dimensional magnetic fluid was measured as a function of the magnetic field and field gradient. It was found that when the field gradient, ∇B , is anti-parallel to the temperature gradient, ∇T , the temperature gradient increases with increasing field and field gradient, but decreases for ∇B parallel to ∇T . For B and ∇B perpendicular to ∇T and gravity, the results are complex and depend on the local configuration of the field and field gradient. We will discuss the results in terms of the effect of local magnetic body force that originates from the local field and the local susceptibility on thermal transfer in magnetic fluids.

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