Abstract Submitted
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Thermally-activated and temperature-independent magnetic relaxation in aligned grains of NdFeAsO(F)[1] JAMES R. THOMPSON, Dept. of Physics, University of Tennessee and Oak Ridge National Laboratory, Y. L. ZUEV, D. K. CHRISTEN, E. D. SPECHT, R. JIN, B.C. SALES, M. A. MCGUIRE, A. SEFAT, D. G. MANDRUS, Oak Ridge National Laboratory — We have studied flux creep in a magnetically-aligned powder of NdFeAsOF and found it to be strikingly similar to the situation in cuprates. The magnetic relaxation rate S=-dlnM_{irr}/dlnt is linear in temperature at low temperatures. There is an extrapolated finite creep rate of about S=-0.02 at T=0, indicative of a quantum tunneling of vortices under energy barriers. This quantum creep rate is field-independent. From the temperature-dependent creep data we have obtained activation energy as a function of persistent current density, U(J). Comparison with existing creep theories will be made.

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