Abstract Submitted
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Behavior of Magnetic Domains in Pyrochlore Iridates[1] TIAN LIANG, Stanford University, RYOMA KANEKO, University of Tokyo, ERIC YUE MA, Stanford University, KENTARO UEDA, University of Tokyo, YONGTAO CUI, University of California Riverside, YONGLIANG YANG, Prime Nano Inc., YOSHINORI TOKURA, University of Tokyo, ZHI-XUN SHEN, Stanford University — Pyrochlore Iridates have attracted considerable attention recently. Electrons in the pyrochore iridates experience a large interaction energy in addition to a strong spin-orbit interaction. Both features make the iridates promising platforms for realizing novel states such as the Topological Mott Insulator. The pyrochlore iridate $Nd_2Ir_2O_7$ shows metal insulator transition at $T_N \sim 32$ K below which magnetically ordered state develops. Torque magnetometry reveals that the hysteresis behavior of the magnetic domains of $Nd_2Ir_2O_7$ depends on the direction of applied magnetic field. Interestingly, for some direction of applied magnetic field, the domains are frozen at low temperatures, but become mobile at high temperatures, showing large hysteresis curves only at elevated temperatures. We compare these results with the metallic domain walls observed in $Nd_2Ir_2O_7$ by microwave impedance microscopy (MIM) and discuss the implications.

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