

Abstract Submitted
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Magnetization and Hall effect measurements on the pyrochlore iridate $\text{Nd}_2\text{Ir}_2\text{O}_7$ ¹ STEVEN DISSELER, Boston College, SEAN GIBLIN, None, CHETAN DHITAL, KEVIN LUKAS, STEPHEN WILSON, MICHAEL GRAF, Boston College — We present magnetization and Hall effect measurements on the pyrochlore iridate $\text{Nd}_2\text{Ir}_2\text{O}_7$. Previous muon spin rotation measurements have shown that the system undergoes an unusual transition at $T_M \sim 110$ K into a magnetic phase lacking long-range order, followed by a transition at $T_{LRO} \sim 6$ K into a state with long-range magnetic order. We observe a small remnant magnetization when cycling through zero magnetic field at temperatures below T_M . Below T_{LRO} an additional hysteresis effect appears at a higher field $B_c = 2.8$ T, together with the appearance of non-monotonic and hysteretic Hall resistance with a maximum at B_c . The dependence on field sweep direction suggests a non-trivial transition in the magnetically ordered state similar to that of spin-ice systems. This work was supported in part by National Science Foundation Materials World Network grant DMR-0710525 and by NSF CAREER award DMR-1056625.

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Steven Disseler
Boston College

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