

Abstract Submitted
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Magnetism and magnetic ordering in $LnCuGa_3$ ($Ln =$ lanthanide)¹ MICHAEL GRAF, RYAN POLISCHUK, MARKIAN BOJKO, STEPHEN TRUDEAU, ELENI HUGHES, REBECCA DALLY, Boston College, UDUMULA SUBBARAO, SEBASTIAN PETER, Jawaharlal Nehru Centre for Advanced Scientific Research — We report structural characterization and magnetization and transport measurements on $LnCuGa_3$ ($Ln = La, Ce, Pr, Nd, Sm, Eu,$ and Gd) intermetallics. Magnetization in fixed field was measured for high quality polycrystalline samples at temperatures between 1.8 and 300 K, along with the isothermal variation of magnetization with field, while the temperature dependent resistivity was measured down to $T = 0.3$ K. All members of this family, except for the $PrCuGa_3$ and non-magnetic $LaCuGa_3$ compounds, exhibit magnetic ordering above 1.8 K at temperatures ranging from 2 K ($CeCuGa_3$) to 75 K ($EuCuGa_3$). The Eu and Sm based compounds exhibit multiple magnetic transitions. $SmCuGa_3$ appears to be ferromagnetic, whereas the other compounds order antiferromagnetically. Preliminary studies on single crystals of $SmCuGa_3$ indicate that the ordered moments lie parallel to the c -axis in the low temperature magnetically ordered phase of this tetragonal system.

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