

Abstract Submitted
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Double metamagnetic transition in $\text{Sr}_4\text{Ru}_3\text{O}_{10}$ investigated by low temperature magnetization measurements¹ DAGMAR FRANZISKA WEICKERT, LEONARDO CIVALE, MARCELO JAIME, BORIS MAIOROV, ROMAN MOVSHOVICH, Los Alamos National Laboratory, R. FITTIPALDI, V. GRANATA, A. VECCHIONE, University of Salerno, Via Giovanni Paolo II, I-84084 Fisciano, Italy, TENG TAN, Temple University, Philadelphia, Pennsylvania 19122, USA, MYRON SALAMON, University of Texas at Dallas, Richardson, TX 75080, Dallas, USA — We report a study of the magnetization of the $n=3$ member of the $\text{Sr}_{n+1}\text{Ru}_n\text{O}_{3n+1}$ Ruddlesden-Popper series down to ^3He temperatures. $\text{Sr}_4\text{Ru}_3\text{O}_{10}$ exhibits ferromagnetism below 105 K with magnetic moments aligned along the crystallographic c -direction in the tetragonal crystal structure. Metamagnetism is observed at about 2 T below 50 K when a magnetic field is applied in the ab - plane. A recent study on high quality samples revealed that the metamagnetism has a substructure [1]. We extend the studies to very low temperatures and found i) a clear double peak in dM/dH , ii) that the metamagnetism is accompanied by a reduction of the magnetic moment and iii) no further splitting of the metamagnetic anomalies to the lowest temperatures of 0.46 K. Furthermore, the measurements indicate a shift of both metamagnetic signatures to higher fields by rotating from $H//ab$ to $H//c$. We will discuss the phase diagram and possible ordered states.

[1] E. Carleschi et *al.* PRB **90**, 205120 (2014).

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