

Abstract Submitted
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Thermodynamics of the critical fluctuations and nematic phase formation of $\text{Sr}_3\text{Ru}_2\text{O}_7$ ANDREAS W. ROST, SUPA/Univ. of St Andrews, ROBIN S. PERRY, SUPA/Univ. of Edinburgh, JEAN-FRANCOIS MERCURE, Univ. of Bristol, SANTIAGO A. GRIGERA, SUPA/University of St Andrews; IFLYSIB, ANDREW P. MACKENZIE, SUPA/Univ. of St Andrews — The itinerant metamagnet $\text{Sr}_3\text{Ru}_2\text{O}_7$ has motivated a wide range of experimental and theoretical work in recent years because of the discovery of an unusual low temperature phase which is forming in the vicinity of a proposed quantum critical point. The transport properties of this phase which exhibit strong electron-nematic-like behaviour [1] have led to a range of theoretical proposals for the underlying physics [2]. A major challenge both experimentally and theoretically is the investigation of the thermodynamic properties of both this unusual phase and the fluctuations associated with the quantum critical point. Here I will report on recent thermodynamic measurements. I will concentrate on new specific heat measurements investigating the nature of the critical fluctuations of the system as well as the low energy excitations of the novel phase.

[1] R.A. Borzi, S.A. Grigera, J. Farrell, R.S. Perry, S. Lister, S.L. Lee, D.A. Tennant, Y. Maeno & A.P. Mackenzie, *Science* 315, 214 (2007).

[2] For a recent review, see E. Fradkin, S. A. Kivelson, M. J. Lawler, J. P. Eisenstein & A. P. Mackenzie, *Annual Review of Condensed Matter Physics* 1, 153 (2010)

Andreas W. Rost
SUPA/Univ.of St Andrews

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