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Inhomogeneous magnetic phases: a LOFF-like phase in $\text{Sr}_3\text{Ru}_2\text{O}_7$
ANDREW BERRIDGE, ANDREW GREEN, SANTIAGO GRIGERA, University of St Andrews, BEN SIMONS, University of Cambridge — The phase diagram of $\text{Sr}_3\text{Ru}_2\text{O}_7$ contains a metamagnetic transition that bifurcates to enclose an anomalous phase with intriguing properties - a large resistivity with anisotropy that breaks the crystal-lattice symmetry. We propose that this is a magnetic analogue of the spatially inhomogeneous superconducting Fulde-Ferrel-Larkin-Ovchinnikov state. We show - through a Ginzburg- Landau expansion where the magnetisation transverse to the applied field can become spatially inhomogeneous - that a Stoner model with electronic band dispersion can reproduce this phase diagram and transport behaviour.

Andrew Berridge
University of St Andrews

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