

## Probing the Physics of the Fractional Vortex State in Mesoscopic Rings of $\text{Sr}_2\text{RuO}_4$

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In the past decade, there has emerged strong evidence to support spin-triplet superconductivity in the layered-perovskite  $\text{Sr}_2\text{RuO}_4$  (SRO), whose ground state is thought to be analogous to the A-phase of superfluid  $^3\text{He}$ . It is believed that the spin and orbital degrees of freedom of the superconducting order parameter can give rise to states with remarkable properties, such as chiral domains, and half-quantum vortices (HQV) that may obey non-Abelian statistics. With regards to the latter, recent theoretical work suggests that the HQV state could be made energetically favorable in mesoscopic SRO samples. In this talk, I will present a new method for ultrasensitive cantilever magnetometry that allows us to probe the magnetic response of mesoscopic samples of SRO. Our most intriguing observation is the appearance of fractional fluxoid states having half the magnetic moment of the full, or integer, fluxoid. In this talk, I will discuss the conditions required to stabilize the half-integer fluxoid states, and also present some ideas as to their origin.

INVITED PAPER

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## Sample Abstract for the 26th International Conference on Low Temperature Physics (LT26)

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A blank line starts a new paragraph, as is demonstrated here. If you have no access to LaTeX, you may download the pdf version of this abstract from the LT26 web site. In the pdf version, a box has been drawn by the method described above to show how many characters can fit in the 9 cm space. You may use footnotes in your abstract, if you really need them. But remember there is not much space in 9 cm.<sup>1</sup> We look forward to seeing you in Beijing in August.

<sup>1</sup>M.D. Manatee, F.L. Orange, and A.B. Gator, Rev. Low Temp. Phys. **81**, 1566 (2004).