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**Unconventional Magnetoresistance Oscillations in $Sr_2RuO_4$** KEVIN ROBERTS, University of Illinois at Urbana-Champaign, VICTOR VAKARYUK, American Physical Society — Unconventional quantum oscillations have been detected in $Sr_2RuO_4$ which cannot be explained by the traditional Little-Parks effect [1]. To gain insight into the problem we use the theory of oscillatory magnetoresistance induced by thermally excited vortex transitions [2]. We numerically obtain energy barriers for vortex entry, calculate the resulting magnetoresistance, and compare our results with experimental data.

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[2] I. Sochnikov, A. Shaulov, Y. Yeshurun, G. Logvenov, and I. Bozovic, Phys. Rev. B, **82**, 094513 (2010)

Kevin Roberts
University of Illinois at Urbana-Champaign

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