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**Skyrmion Flux Lattices and their  $\mu$ SR signature**<sup>1</sup> QI LI, JOHN TONER, DIETRICH BELITZ, University of Oregon — Recently, topological excitations known as skyrmions were predicted to exist in p-wave superconductors [1]. The elastic theory of an induced skyrmion lattice was developed in [2], and its melting curve was found to be qualitatively different from that for vortex lattices. Here we show that the muon spin resonance ( $\mu$ SR) signatures of the two types of lattices are also very different.  $\mu$ SR has been applied extensively to study the magnetic properties of vortex flux lattices [3]. The observable in this technique is the  $\mu$ SR line shape  $n(B)$ , which is the probability density that a muon experiences a local magnetic induction  $B$ . In a vortex lattice, for small  $B$ ,  $n(B) \propto \ln(1/B)/B$ . By contrast, for a skyrmion lattice we predict  $n(B) \propto B^{-(3/2)}$ . This difference provides another way to easily distinguish between vortex and skyrmion flux lattices, and can thus help to identify p-wave superconductors. [1] A. Knigavko, B. Rosenstein, and Y.F. Chen, Phys. Rev. B 60, 550 (1999). [2] Qi Li, John Toner, and D. Belitz, Phys.Rev. Lett. 98, 187002 (2007). [3] J. E. Sonier, J.H. Brewer, and R. F. Kiefl, Rev. Mod. Phys. 72, 769 (2000).

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