

Abstract Submitted
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The interaction between superconductors and Mn₁₂-acetate single-molecule magnets¹ K. KIM, J. MEANS, W. TEIZER, Department of Physics, Texas A&M University — Possible applications of single-molecule magnets (SMMs), e.g. for ultra high density magnetic information storage device, quantum computation, and molecular electronics, have been suggested due to the unusual magnetic behavior. It is an important prerequisite for the applications to develop a reliable technique to organize the molecules on a surface and to detect the magnetic signals of the molecules. A solution evaporation technique combined with conventional lithography is a simple but reliable approach to generate Mn₁₂-acetate thin film patterns on the micro/nano-scale. The miniaturized SQUID is appropriate for sensing the magnetic flux from the film structure of the molecular magnets. A new interesting system, the so-called superconductor/SMM hybrid, results from the experimental configuration. Understanding this new type of hybrid system is important not only because of the expectation of new phenomena affecting on the functionality of superconducting devices, but also because the two coupled substances are fundamentally incompatible phases. In this presentation, the first experimental attempt to understand the interaction between an aluminum superconducting film and Mn₁₂-acetate SMMs will be discussed.

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