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Measuring the magnetic properties of monolayers of single molecule magnets

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text

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oral

Summary

A promising strategy to encode information in molecular units is provided by single molecule magnets (SMMs), chemically identical nanoscale clusters of exchange-coupled transition metal and associated ligands. SMMs have been used to study a variety of quantum phenomena and may find applications in quantum information processing. The assembly of these systems on surfaces is currently investigated as this represents a necessary prerequisite for magnetic memory applications. However, the effect of the surface on an SMM is still not well understood. This is due to the small quantity of magnetic material contained in a (sub)monolayer which prevents the use of conventional techniques. Here we overcome this obstacle by using a novel proximal magnetometry techniques utilizing polarized muons and nuclei as an implanted local probe to investigate magnetic properties of such monolayers of SMMs. We anticipate that this method will provide a powerful tool to improve our understanding of the influence of the surface on a grafted SMM.

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