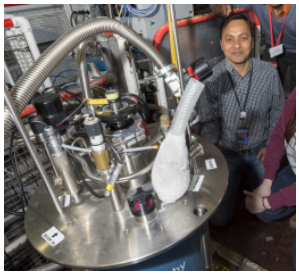

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Magnetic behaviour in two-dimensional molecule-based magnets with S=2 spins

Monday, 11 September 2023 17:30 (10 minutes)

Molecular magnets consisting of metal ions surrounded by organic ligands offer a playground for investigating and manipulating the strength and nature of magnetic interactions present in a material. One possibility is to adjust the value of the magnetic spin centres in the molecular magnet, which means the crossover between quantum and classical regimes can be examined. This is realised by MnF3(pyz): a quasi-two-dimensional material consisting of S=2 Mn(lll) spin centres in which the presence of reduced dimensionality and a large value of S results in magnetic behaviour within this classical/quantum crossover regime. A combination of muon-spin spectroscopy, magnetometry and electronic structure calculations have been utilised in order to provide insight into this magnetism, which provides an overall picture not accessible by any technique in isolation.

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