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Magnetic Susceptibility of Spin Ice MIKAEL TWENGSTRÖM[1], Department of Theoretical Physics, KTH, Sweden, LAURA BOVO[2], London Centre for Nanotechnology and Department of Physics and Astronomy, University College London, UK, TOM FENNELL[3], Laboratory for Neutron Scattering and Imaging, Paul Scherrer Institut, Switzerland, STEVEN T. BRAMWELL, London Centre for Nanotechnology and Department of Physics and Astronomy, University College London, UK, OLEG A. PETRENKO, University of Warwick, Department of Physics, UK, MICHEL J. P. GINGRAS, Department of Physics and Astronomy, University of Waterloo, Canada. Canadian Institute for Advanced Research, Canada, PATRIK HENELIUS, Department of Theoretical Physics, KTH, Sweden — The magnetic susceptibility of a spin ice material is a sensitive probe of the relevant physics in different temperature ranges. At high temperatures, where crystal field excitations dominate the susceptibility, the spin ice picture is not applicable. However, at temperatures below 10 K, the Ising anisotropy is well developed and the dipolar spin ice model (DSIM) can be employed. In this study we present experimental susceptibility data between 0.4 K and 10 K and revisit the DSIM in order to theoretically model this data. We find that the DSIM provides a good semi-quantitative description of both the temperature dependence of the uniform bulk susceptibility and the **Q**-dependent susceptibility measured by neutron scattering.

[1]Simulations
[2]Bulk measurements
[3]Neutron scattering

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