



Contribution ID: 22

Type: **Talk**

[122] Magnetostriction measurements of quantum spin ice candidates at ultra-low temperatures

Friday 13 September 2024 13:30 (15 minutes)

Rare-earth pyrochlores frequently exhibit spin ice correlations and, therefore, can potentially host quantum spin ice (QSI) phases. In these systems, the spin-orbital ground state doublet can be represented as an effective pseudo-spin $1/2$. In addition to dipolar moments, multipoles are allowed, which can stabilise ice or ordered phases, or introduce quantum fluctuations on a dipolar spin ice manifold.

Magnetostriction can reveal hidden multipolar orders and is proposed for distinguishing dipolar and octupolar QSI. This study presents magnetostriction measurements at ultra-low temperatures on QSI candidates based on cerium and praseodymium.

Author: VILLA, Ilaria (Paul Scherrer Institute)

Co-authors: BARTKOWIAK, Marek (Laboratory for Neutron and Muon Instrumentation (LIN), Paul Scherrer Institut); Prof. KENZELMANN, Michel (Paul Scherrer Institut, Laboratory for Neutron Scattering & Imaging); SIBILLE, Romain Franck

Presenter: VILLA, Ilaria (Paul Scherrer Institute)

Session Classification: Condensed Matter Physics (KOND)

Track Classification: Condensed Matter Physics (KOND)