Abstract ID : **108**

Monday 17 Oct, 15:00

Investigating short-range magnetic correlations in real space with magnetic pair distribution function analysis

Benjamin Frandsen

Short-range magnetic correlations play a key role in a wide variety of material systems, ranging from quantum materials, such as geometrically frustrated magnets, to technologically applied materials, such as magnetocalorics. Quantitatively characterizing these correlations is necessary to gain a complete understanding of these types of materials, but conventional techniques based on magnetic diffraction fail due to the short-range nature of the correlations of interest. Recently, magnetic pair distribution function (mPDF) analysis has emerged as a promising method for studying short-range magnetic correlations by Fourier transforming the magnetic scattering into real space, similar to the more familiar atomic pair distribution function method. mPDF analysis has been applied successfully to numerous magnetic materials, including geometrically frustrated magnets, strongly correlated electrons systems, magnetic thermoelectrics, multiferroics, and more. In this talk, I will introduce the mPDF method, discuss its application to representative materials, and provide an overview of the software tools available for mPDF analysis.

Primary author(s) : FRANDSEN, Benjamin (Brigham Young University)