



NordForsk



# FunHy Newsletter

## Who and where

FunHy member Magnus Moe Nygård participated in the ADD2019 – School and Conference on the Analysis of Diffraction Data in Real Space in the period 17-22 March 2019. The event was co-organized by the Institute Laue Langevin (ILL) and the European Synchrotron Radiation Facility in Grenoble, France. This was the fourth time ADD has been organized.

## Why

The purpose of ADD2019 School and Conference is to deepen the understanding and to further the training of the various communities working on real-space data analysis for neutron and x-ray diffraction techniques. Fourier transformation of diffraction data into real-space, traditionally used for the structural determination of liquids and glasses, is now increasingly employed for partially-disordered crystalline powder samples. The Fourier transformation of diffraction data into real-space produces a Pair-Distribution Function (PDF) that provides a model-independent "snapshot" of the local structure within the sample. The PDF( $r$ ) thus probes both static and dynamic atomic correlations (and also magnetic spin-spin correlations in the case of neutron diffraction). The so-called "PDF-analysis" technique is therefore complementary to the well-known Rietveld method of refining diffraction data in Q-space that provides a space-time averaged picture of the sample's structure.

In the FunHy project, there are many partially disordered materials under investigation, most notably the so-called high-entropy alloys. As functional properties of disordered materials often depend sensitively on the local disorder, it is important to build competence within the project to be able to investigate this in more detail.



FunHy webpage: <http://inano.au.dk/about/research-groups/nano-energy-materials/projects/neutrons-for-multi-functional-hydrides-funhy/>