

Polarised neutron diffraction at MLZ and beyond

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Under the general name of “polarised neutron diffraction” indeed a variety of different experimental techniques are usually meant. Those are: classical polarised neutron diffraction (PND) called also Flipping-Ratio method or also in the recent years: Half-polarised neutron diffraction, this technique uses strong magnetic fields (> 1 T) on the sample position. Another method is Linear or Uniaxial, or simply, Polarisation Analysis, generalised version of it been called: XYZ Polarisation Analysis, this technique usually uses weak magnetic fields (< 1 T) from dedicated coil arrangements or tuneable vector field magnet. Third method is Spherical Neutron Polarimetry (SNP), former times called also 3D Polarisation analysis, uses samples situated in the special zero- magnetic fields chambers, to screen stray field from surrounding and even Earth magnetic field (Cryopad, Mupad). In the last time also development of the polarised neutrons powder diffraction is promoted, so called Flipping - Difference method. A number of these measuring techniques are implemented at MLZ on instruments like e.g. POLI, DNS or soon Kompass and others. We will present an overview of the “polarised neutron diffraction” methods at MLZ, current situation in this field at other facilities and try to sketch out the trends for the next future.

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