

DNS-WAPA: A cold-neutron xtal-TOF spectrometer with wide-angle polarization analysis

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Unravelling emergent excitations and exotic quasiparticles in frustrated and topological quantum magnets represents a tremendous challenge experimentally, since the relevant inelastic scattering signals are very weak, often very broad in Q-space, and may be highly anisotropic in spin-space or strongly bond-direction dependent. A dedicated cold-neutron TOF spectrometer that combines with a new-generation wide-angle polarisation analysis (WAPA) can meet this challenge. The primary consideration of the DNS-WAPA project is to upgrade DNS to a more dedicated cold-neutron xtal-TOF spectrometer that would become internationally competitive among similar instruments for the measurement of magnetic excitations, meanwhile, to retain its world-leading position in polarised magnetic diffuse scattering.

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