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[713] The spiral magnetic order in YBaCuFeO5 single crystals

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The low ordering temperatures of most non-collinear cycloidal magnets (typically < 50 K) limit their use in ambient temperature devices. The layered perovskites LnBaCuFeO5 are a rare case of frustrated oxides where a novel “spiral order by disorder” mechanism appears to account for the existence of a spiral order with extraordinary stability, but direct evidence of the chiral nature of this incommensurate phase is lacking. This presentation aims to fill this gap by providing proofs of the magnetic structures through spherical neutron polarimetry and crystal neutron diffraction, highlighting critical features relevant to the search for high temperature magnetoelectric response induced by the spiral phase.

Primary author: ROMAGUERA-CAMPS, Arnau (PSI Villigen)

Co-authors: MEDARDE, Marisa (Paul Scherrer Institute); CIOMAGA HATNEAN, M.; FABELO, O.; QURESHI, N.; RODRÍGUEZ-VELAMAZÁN, J. A.; GARCÍA-MUÑOZ, José Luis

Presenter: ROMAGUERA-CAMPS, Arnau (PSI Villigen)

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