

# Poster Presentations

## [MS35-P02] $\text{MnSb}_2\text{O}_6$ : A Polar Magnet with a Chiral Crystal Structure.

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Structural and magnetic chiralities are found to coexist in a small group of materials in which they produce intriguing phenomenologies such as the recently discovered skyrmion phases. Here, we describe a previously unknown manifestation of this interplay in  $\text{MnSb}_2\text{O}_6$ , a trigonal oxide with a chiral crystal structure. Unlike all other known cases, the  $\text{MnSb}_2\text{O}_6$  magnetic structure is based on co-rotating cycloids rather than helices. The coupling to the structural chirality is provided by a magnetic axial vector, related to the so-called vector chirality. We show that this unique arrangement is the magnetic ground state of the symmetric-exchange Hamiltonian, based on *ab-initio* theoretical calculations of the Heisenberg exchange interactions, and is stabilised by out-of-plane anisotropy.  $\text{MnSb}_2\text{O}_6$  is predicted to be multiferroic with a unique ferroelectric switching mechanism.

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