Abstract Submitted
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Novel multi-Q spiral spin texture in $SrFeO_3$[1] S. ISHIWATA, University of Tokyo, J. -H. KIM, D. S. INOSOV, Max Planck Institute, Y. TOKUNAGA, S. SEKI, RIKEN CEMS, N. KANAZAWA, University of Tokyo, R. GEORGII, K. SEEMANN, G. BRANDL, FRM II, J. WHITE, N. EGETENMEYER, J. GAVILANO, PSI, Y.W. LONG, Y. KANEKO, Y. TAGUCHI, RIKEN CEMS, T. ARIMA, University of Tokyo, B. KEIMER, Max Planck Institute, Y. TOKURA, University of Tokyo and RIKEN CEMS — A magnetic skyrmion discovered recently in chiral and cubic helimagnet such as MnSi [1] is of great interest for novel spintronic functions. $SrFeO_3$ has been known as a rare cubic perovskite showing both helimagnetic transition and metallic conduction. While the magnetic ground state has been believed to have a simple proper-screw-type helimagnetic order below, we found that $SrFeO_3$ hosts a rich variety of helimagnetic phases potentially containing novel skyrmion phases [2]. In the low magnetic field phases, a large topological Hall effect suggesting the formation of skyrmion lattice was observed. In this talk, based on the polarized and unpolarized neutron scattering studies, we will discuss the possible formation of novel type of three-dimensional skyrmion crystals, which can be characterized by quadruple-Q vectors along <111>equivalents in a cubic lattice.

[1] S. Mühlbauer et al., Science 323, 915 (2009).
[2] S. Ishiwata et al., Phys. Rev. B 84, 054427 (2011).

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