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Hall effect of spin-chirality origin in a triangular-lattice helimagnet $Fe_{1.3}Sb$ YUKI SHIOMI, MASAHITO MOCHIZUKI, Department of Applied Physics, University of Tokyo, YOSHIO KANEKO, Multiferroics Project, ERATO, YOSHINORI TOKURA, Department of Applied Physics, University of Tokyo — We report on a topological Hall effect possibly induced by scalar spin chirality in a quasi-two-dimensional helimagnet$Fe_{1+x}Sb$. In the low-temperature region where the spins on interstitial-Fe (concentration $x \approx 0.3$) intervening the 120° spin-ordered triangular planes tend to freeze, a non-trivial component of Hall resistivity with opposite sign of the conventional anomalous Hall term is observed under magnetic field applied perpendicular to the triangular-lattice plane. The observed unconventional Hall effect is ascribed to the scalar spin chirality arising from the heptamer spin-clusters around the interstitial-Fe sites, which can be induced by the spin modulation by the Dzyaloshinsky-Moriya interaction.

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