

Element such as random number generator, oscillator, wave detector and memory that is ultra compact, low power consumption and highly stable

Innovative technology possible to apply in a wide application by using spintronics

Overview

There are various schemes to electrically control magnetic materials. Several functional elements such as random number generation, oscillator, wave detection and memory based on the previously discovered phenomena have been proposed so far. However, elements that use ferromagnetic material is sensitive to magnetic field noise caused by external magnetic field, needs magnetic field control by an external mechanism to control oscillator and wave detector frequency, and requires miniaturization.

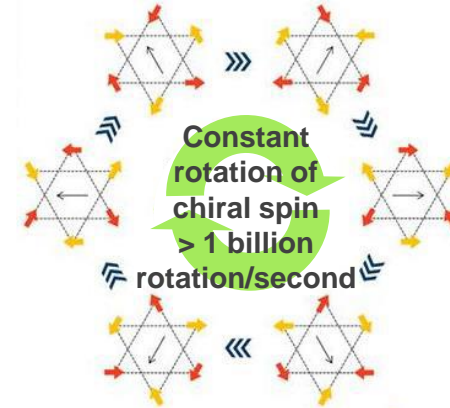
This technology solves the above issues based on the new phenomenon, so called continuous rotation of chiral spin structure in non-collinear antiferromagnetic materials, and provides ultra compact, low power consumption and highly stable elements.

Product Application

Random number generation element, oscillator element, wave detector element, memory element

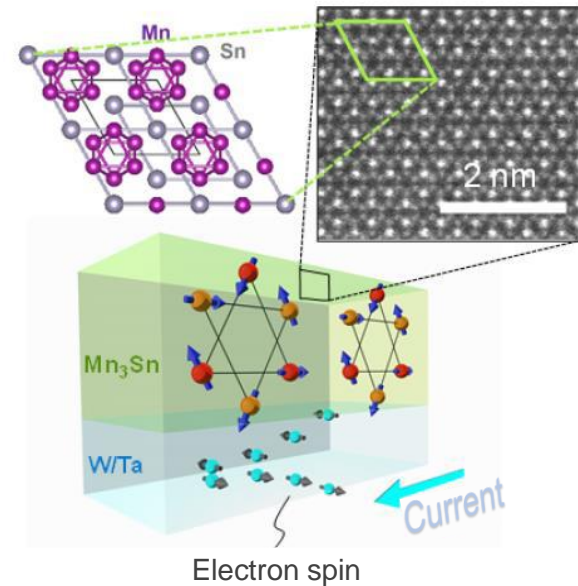
IP Data

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Schematic figure of continuous rotation of chiral spin structure

Features • Outstanding



Schematic figure of the stack structure (W/Ta/Mn₃Sn/Pt) used in demonstration (Pt layer is omitted) and an example of a cross-sectional high-resolution transmission scanning electron microscope image of Mn₃Sn layer

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