

A metal-based Hall sensor material is coming!!

Cheap ingredients and low-T fabrication compatible with mass production

Hall sensor operable under bending conditions and over a wide T range

Overview

Conventional Hall sensors (a type of magnetic-field sensors) rely on highly crystalline semiconductors such as GaAs and InSb that show the large ordinary Hall effect. However, the requirements for low carrier density and high mobility impose strong constraints on the fabrication processes and conditions. Also, their strong T-dependent electrical properties must be cancelled out with additional ICs to achieve Hall sensor operation over a wide practical T range.

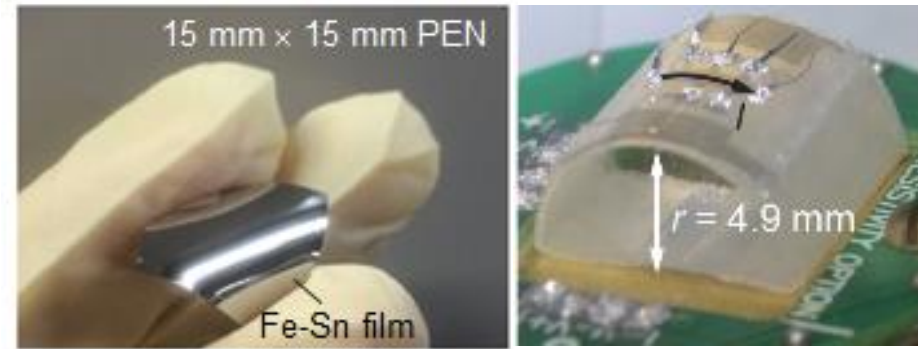
This invention describes a ferromagnetic Fe-Sn alloy, which can work as a superior Hall sensor material owing to the large anomalous Hall effect. This novel material offers many technological advantages including cheap and non-toxic ingredients, the room-temperature growth on various substrates, and high sensitivity and thermal stability.

Product Application

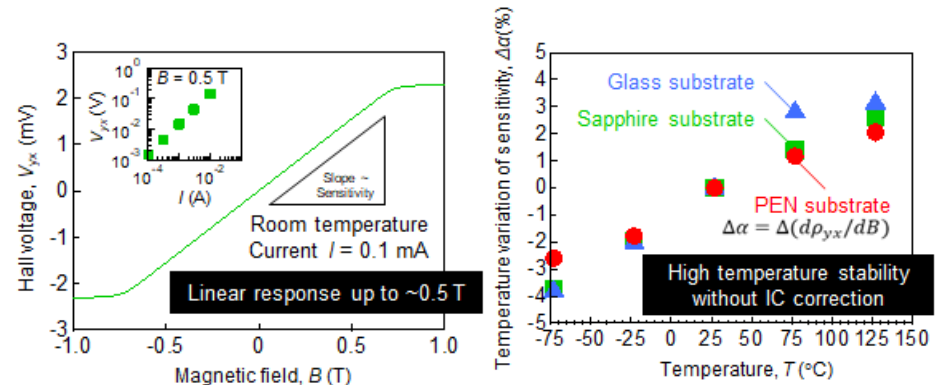
- ❑ Film growth on commercial flexible substrates
- ❑ Sensitivity comparable to those of conventional semiconductor Hall sensors
- ❑ Superior temperature stability without IC correction

IP Data

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Features · Outstandings



Related Works

[1] Y. Satake, K. Fujiwara, A. Tsukazaki et al., Fe-Sn nanocrystalline films for flexible magnetic sensors with high thermal stability

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