

Co₂MnGa 焼結体における横型磁気熱電変換**Transverse magneto-thermoelectric conversion in sintered Co₂MnGa slab****岩手大理工¹, NIMS², 筑波大³, 東北大金研⁴,****高森健太¹, ○大柳洸一^{1,2}, 今村拓未¹, 長澤蓮^{2,3},****Krishnan Mahalingam², 平井孝昌², 小林悟¹, 内田健一^{2,4}****Iwate Univ.¹, NIMS², Univ. of Tsukuba³, IMR, Tohoku Univ.⁴,****Kenta Takamori¹, ○Koichi Oyanagi^{1,2}, Takumi Imamura¹, Ren Nagasawa^{2,3},****Krishnan Mahalingam², Takamasa Hirai², Satoru Kobayashi¹, and Ken-ichi Uchida^{2,4}****E-mail: k.0yanagi444@gmail.com**

The anomalous Nernst effect (ANE) refers to the conversion of a heat current into a transverse charge current in magnetic materials with spontaneous magnetization. Because of the orthogonal relation between heat and charge currents, ANE has potential to realize thermoelectric conversion in a simple and scalable device structure, which cannot be achieved by the conventional thermoelectric effects. However, the output of ANE is still small. Recently, large ANE has been found in magnetic topological materials. Among the materials studied so far, the ferromagnetic Weyl semimetal Heusler alloy Co₂MnGa (CMG) exhibits the largest anomalous Nernst coefficient above room temperature, which has been observed both in single crystals [1] and epitaxial thin films [2].

Here, we systematically studied the ANE coefficient and its transverse thermoelectric figure of merit ZT in sintered polycrystalline CMG slabs synthesized with various sintering conditions. We found that the ANE coefficient depends on the sintering time, temperature, and pressure and optimized the parameters to further improve ANE in CMG. In this talk, we show the systematic experimental results and discuss possible origins of the observed sintering-process-condition dependence of ANE.

[1] A. Sakai *et al.*, Nat. Phys. **14**, 1119 (2018).

[2] K. Sumida *et al.*, Commun. Mater. **1**, 89 (2020).