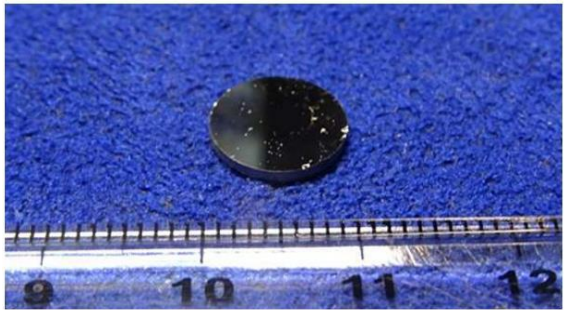
Tohoku Univ. Technology

High-Efficiency MnSi based thermoelectric material

Highly efficient MnSi baset material



Reference [1]

Overview

Conventional manganese-silicide-based thermoelectric material MnSix has excellent thermoelectric property and thermal shock resistance. For example, the output factor S2σ (where S is the Seebeck coefficient and σ is the electrical conductivity), which is one of the thermoelectric property, is maximum 2.22 mW/K2m at 500C.

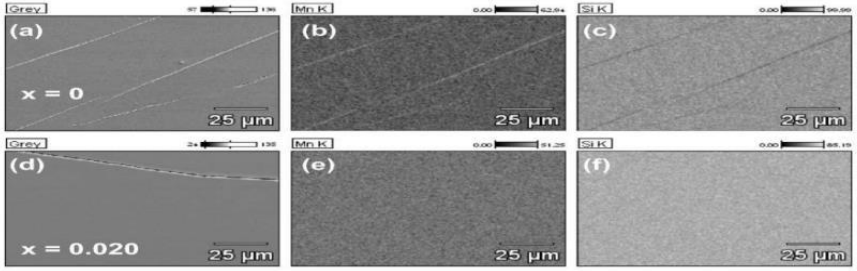
However, MnSi (manganese monosilicide) is deposited in the layers in MnSix c-axis direction with a period of several tens microns, which causes a decrease of the figure of merit Z (output factor S2σ divided by thermal conductivity κ) of the material.

This invention limits the MnSi layer deposition and provides a thermoelectric material with an excellent thermoelectric property and its manufacturing method.

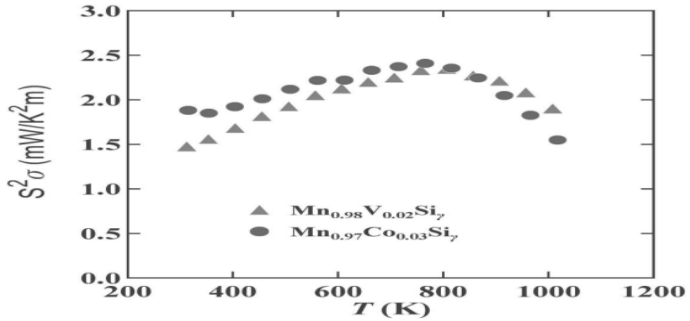
Related Works

[1] NEDO, Realization of approximately twice the output factor compared to conventional one by using manganese-silicide-based thermoelectric conversion material, 1st Dec.2016, (https://www.nedo.go.jp/news/press/AA5_100684.html)

Restrain layer deposition



Performance comparable to BeTe based material



IP Data

IP No.	:	JP2017-074104
Inventor	:	MIYAZAKI Yuzuru, HAYASHI Kei, YUBATA Kunio HAMADA Haruki, SATO Mika
Admin No.	:	T16-036

Contact

Tohoku Techno Arch Co., Ltd.
Please visit CONTACT here