Thermoelectric performance of Fe2VAl/CNT-based alloys

Emad M. Elsehly1, \*), N.G. Chechenin2)

1) Damanhour University, Egypt

2) SINP MSU, Russia

\*) elsehlyfigo@yahoo.com

Heusler-type Fe2VxTi1-xAl alloys offer an alternative solution for the generation of thermoelectric power near room temperature. In the current research, thermoelectric properties of the p-type Fe2V0.9Ti0.1Al and Fe2V0.9Ti0.1Al/CNTs alloys, prepared by SPS, were studied. Carbon nanotubes (CNTs) were used as dopants to improve the Seebeck coefficient and electrical conductivity [1]. Upon doping with CNTs, the thermal conductivity was significantly reduced, meanwhile, the value of the power factor increased from 0.45 to 1.55 mW/m.K2 at around 330K. The effect of CNT inclusions on the thermoelectric parameters of Fe2V0.9Ti0.1. Al compounds was systematically studied. When compared to Fe2V0.9Ti0.1Al, which had a figure of merit of just 0.02 at 330 K, the CNT-containing samples showed a significantly improved figure of merit up to 0.07. we offer a novel technique to improve the performance of Fe2VAl alloys.

REFERENCES

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