A View of Thermoelectric Properties of the Ceramic Materials

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Abstract

Ceramics have thermal properties such as high melting points, low thermal conductivity and high specific heat capacity, and electrical properties such as low electrical conductivity etc..

The feature of thermoelectricity is used to transform waste heat into electricity. This transformation between thermal and electricity energy is possible owing to three effects of Seebeck, Peltier and Thomson. Thermoelectricity is utilized in the construction of coolers and power generators. The enhanced thermoelectricity performance of these devices is provided the improved thermoelectric properties related to the microstructure of materials.

In this reviewed study, it has been investigated the thermoelectric properties of some ceramic materials. Also, it has been searched the relationships between the thermal-transport properties and structural properties of ceramic materials.

Keywords: Thermoelectricity, Thermoelectric Properties, Structural Properties, Ceramics, Oxide Ceramics