

Thermoelectricity: Principles and applications

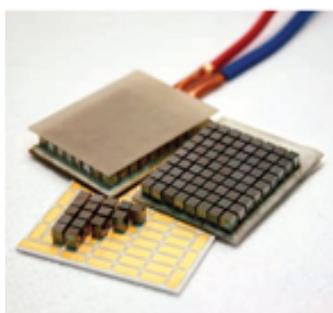
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Abstract

Thermoelectricity is a technology that converts thermal energy into electrical energy (thermoelectric generator TEG) or vice versa (thermoelectric cooler or heater TEC/TEH). Therefore thermoelectrics is literally associated with thermal and electrical phenomena. The main advantages of thermoelectric devices (TED) are their noiseless operation, they have no moving parts and no working fluids and they don't release any by-products in the environment. In this presentation we give an overview of the physical principles of thermoelectricity, the existing state of research and the performance parameters of thermoelectric materials as well as examples of the wide range of applications of thermoelectric modules (e.g. waste heat recovery, generation of electric power in remote area, solar TEG, space flight, medicine, etc.,)



Biography

Karl-Heinz Gresslehner was born on 27.03.1948 and completed his PhD in the field of semiconductor physics in 1981 at the Johannes Kepler University in Linz. He was working more than 10 years in the industry (semiconductor industry; environmental protection at the state government) and 24 years as a teacher at a school for higher technical education (HTL). Since 2016 he is a Professor at the University of Applied Sciences in Upper Austria and is the head of the research group Thermoelectricity



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