Karl Heinz Gresslehner

University of Applied Sciences Upper Austria, Austria

Thermoelectricity: Principles and applications

Thermoelectricity is the direct conversion of thermal energy into electrical energy (denoted as thermoelectric generator TEG) and vice versa (denoted as thermoelectric cooler TEC). Therefore, thermo electrics is literally associated with thermal and electrical phenomena. The main advantages of TEG's and TEC's are their noiseless operation, no moving parts and no working fluids are necessary.

In this presentation we will 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.).

Speaker Biography

Karl Heinz Gresslehner completed his PhD in the field of semiconductor physics in 1981 at the Johannes Kepler University, Linz. He is working more than 10 years in the industry and 24 years as a teacher at a school for higher technical education. Since 2016, he is a professor at the University of Applied Sciences in Upper Austria and is the head of the research group thermoelectricity.

e: karl.gresslehner@fh-wels.at

Notes: