Thermoelectric Materials 2000
The Next Generation Materials for Small-Scale Refrigeration and Power Generation

Terry M. Tritt (Editor), G. Mahan (Editor), M. G. Kanatzidis (Editor), G. S. Nolas (Editor), D. Mandrus (Editor) (2001)

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The presentations from the symposium are grouped into the following topics: skutterudites, superlattice, new materials, quantum wires and dots, half-heusler alloys and quasicrystals, TE theory, thermonics, clathrates, and thin films TE. In addition, poster sessions include the following: semiconductors with tetrahedral anions as potential thermoelectric materials, lattice dynamics study of anisotropic heat conduction in superlattices, structure and thermoelectric properties of new quaternary tin and lead Bismuth selenides, attributes of the Seebeck coefficient of Bismuth microwire array composites, and High-Z Lanthanum-Cerium Hexaborate thin films for low-temperature applications.

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Our recommended reading list:

- CRC Handbook of Thermoelectrics (1995)
- Principles of Thermoelectrics: Basics and New Materials Development (2001)
MRS Proceedings Thermoelectric Materials 2000 - The Next Generation Materials for Small-Scale Refrigeration and Power Generation Applications: Volume 626. Paperback. Mrs Proceedings. However, despite extensive investigation of these traditional thermoelectric materials, there is still substantial room for improvement and entirely new classes of compounds will have to be investigated. This book, the fourth in a series from MRS, brings together experts in the field not to discuss further optimization of established materials, but instead, to discuss the development of the next generation of materials for small-scale refrigeration and power generation applications.

2.2 Thermoelectricity. Thermoelectric materials endow the free energy from waste heat for useful purposes. A typical thermoelectric material should have high electrical conductivity, low thermal conductivity and thus must maintain a temperature gradient. For an electrically conducting polymer nanocomposites, the electrical conductivity ($\sigma$) is expressed as Eq. Thermoelectric Materials 2000 The Next Generation Materials for Small-Scale. Refrigeration and Power Generation. Terry M. Tritt (Editor), G. Mahan (Editor), M. G. Kanatzidis (Editor), G. S. Nolas (Editor), D. Mandrus (Editor) (2001). Where Should We Look for High ZT Materials: Suggestions From Theory Enhancement of Power Factor in a Thermoelectric Composite With a Periodic Microstructure Connections Between Crystallographic Data and New Thermoelectric Compounds Investigation of the Thermal Conductivity of the Pentatellurides (Hf1-xZrxTe5) Using the Parallel Thermal Conductance Technique Compositional and Structural Modifications in Ternary Bismuth Chalcogenides and Their Thermoelectric Properties Doping Studies.