



Thermoelectric Materials for Energy Conversion

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Message from the Guest Editor

Thermoelectrics can enable direct energy conversion between heat and electricity, based on thermoelectric effects, which has been considered as a green and sustainable solution to the global energy dilemma. Energy conversion efficiency of thermoelectrics is weighed by the dimensionless figure of merit, $ZT = S^2\sigma T/\kappa$, where S , σ , κ and T are, respectively, the Seebeck coefficient, electrical conductivity, thermal conductivity (including electronic component κ_e and lattice component κ_l), and the working temperature. Thus far, significant progress has been achieved in enhancing ZT via increasing powder factor ($S^2\sigma$) (by band convergence, reversible phase transition, quantum confinement) and/or reducing κ (by nanostructuring, hierarchical architecturing, matrix with nano-precipitate). This Special Issue will focus on recent advances in thermoelectric sector on a wide range of topics from material design to applications in energy conversions, including:

- Thermoelectric materials
- Thermoelectric refrigeration
- Thermoelectric power generation
- Thermoelectric water generation
- New type therm





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Message from the Editor-in-Chief

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