

**DEVELOPMENT OF NOVEL THERMOELECTRIC MATERIALS
~FROM FUNDAMENTAL TO APPLICATION VIEWPOINT~**

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Thermoelectric power generation technology is now expected to help overcome global warming and climate change issues by recovering and converting waste heat into electricity, thus improving the total efficiency of energy utilization. Therefore it is urgent issues to develop thermoelectric materials with high performance. In this presentation, thermoelectric properties of novel thermoelectric materials with high performance will be introduced, which we have been developed so far, such as chalcopyrite compounds ($ZT_{max} > 1.5$ at 973 K) (1-3) and homologous compounds ($ZT_{max} = 0.57$ at 700 K) (4). Meanwhile, in terms of practical point of view, thermoelectric oxides have been focused much attention because they have a low cost, are environmentally friendly, and are stable at high temperature in air. Our recent efforts to improve of thermoelectric and mechanical properties of oxide materials by various approaches (5-9) will be introduced.

KEYWORDS: Thermoelectric Materials, Chalcopyrite compounds, Homologous compounds, Thermoelectric Oxides

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