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# P- and N-Type Sb-Based Zintl Thermoelectrics for Energy Harvesting Applications

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## Résumé

In my talk, I will discuss the fundamentals of thermoelectric theory and devices, the basics of efficiency optimization, and how such devices are used in space and other technological applications. With promising novel structure types and compounds being frequently reported, Zintl phases as "phonon-glass electron-crystal" materials represent an important and incredibly diverse new class of thermoelectrics. Herein, I will explain why Zintl phases' characteristics make them suitable thermoelectric materials. I will introduce the crystal structure, tunable electronic transport properties, and glass-like lattice thermal conductivity in  $\text{Ca}_9\text{Zn}_{4+x}\text{Sb}_9$ ,  $\text{Li}_3\text{Sb}$ , and  $\text{Mg}_3\text{Sb}_2$  as three efficient Sb-based Zintl phase representatives.

**Mots-Clés:** Zintl Phases, Thermoelectric, Energy Harvesting, High, Efficiency

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