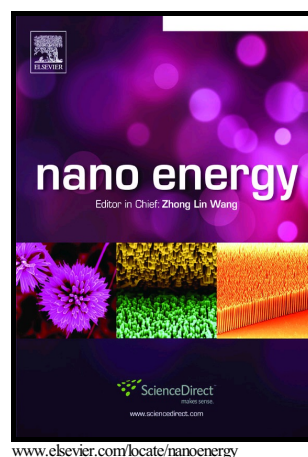


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Optimized Hetero-interfaces by Tuning 2D SnS₂ thickness in Bi₂Te_{2.7}Se_{0.3}/SnS₂ nanocomposites to enhance Thermoelectric performance

Shuankui Li^a, Xuerui Liu^a, Yidong Liu^a, Fusheng Liu^b, Jun Luo^c, Feng Pan^{a*}

^aSchool of Advanced Materials, Peking University Shenzhen Graduate School, Shenzhen, 518055, China

^bCollege of Materials Science and Engineering, Shenzhen University and Shenzhen Key Laboratory of Special Functional Materials, Shenzhen, 518060, China

^cSchool of Materials Science and Engineering, Shanghai University, Shanghai, 200444, China

panfeng@pkusz.edu.cn

Abstract

Tuning the electron and phonon transport properties of thermoelectric materials to partially decouple electrical conductivity, Seebeck coefficient and thermal conductivity is the core issue to improve the conversion efficiency. Herein, Bi₂Te_{2.7}Se_{0.3}/SnS₂ nanocomposites with a unique hetero-structure that the 2D atomically thin SnS₂ nanosheets (2-15 nm) homogeneously assembled on BTS grain boundaries have been successfully synthesized to explore the size-dependent electron and phonon regulating effects. The atomically thin Bi₂Te_{2.7}Se_{0.3}/SnS₂

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