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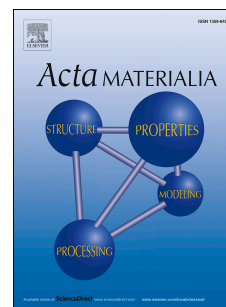
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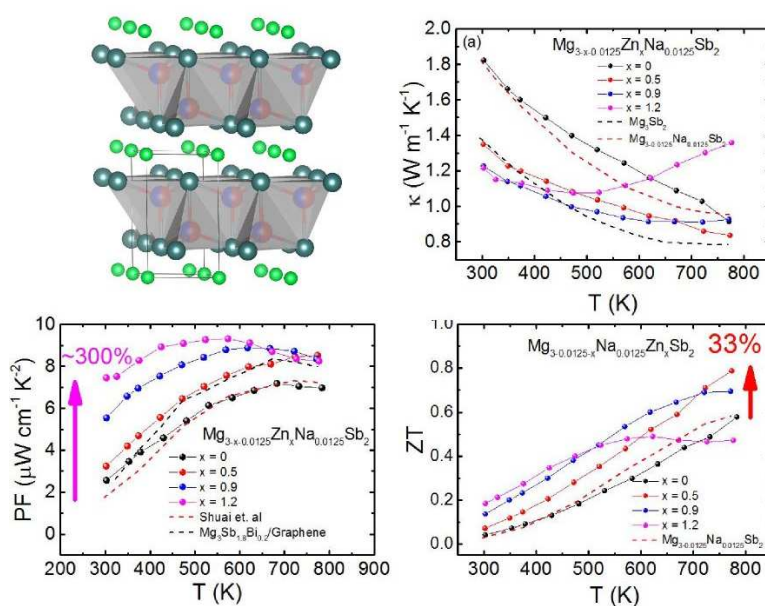
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Significantly enhanced thermoelectric properties of p-type Mg_3Sb_2 via co-doping of Na and Zn

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Keyword: Zintl phase, Mg_3Sb_2 , thermoelectric, power factor, carrier mobility.

Co-doping Na and Zn into thermoelectric compound Mg_3Sb_2 simultaneously improves all the thermoelectric transport properties, conductivity σ , Seebeck coefficient S and reduced thermal conductivity κ , thus leading to significantly higher ZT of ~ 0.8 , a 33 % improvement. Importantly, greatly improved power factor in the whole measured temperature range, i.e., 300% at 323 K and 15% at 773 K, respectively, lead to not only the highest average power factor but also the highest output power density for p-type Mg_3Sb_2 even under large temperature gradient in real application.



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