

Supporting Information (SI)

High Thermoelectric Performance and Enhanced Mechanical Stability of p-type $\text{Ge}_{1-x}\text{Sb}_x\text{Te}$

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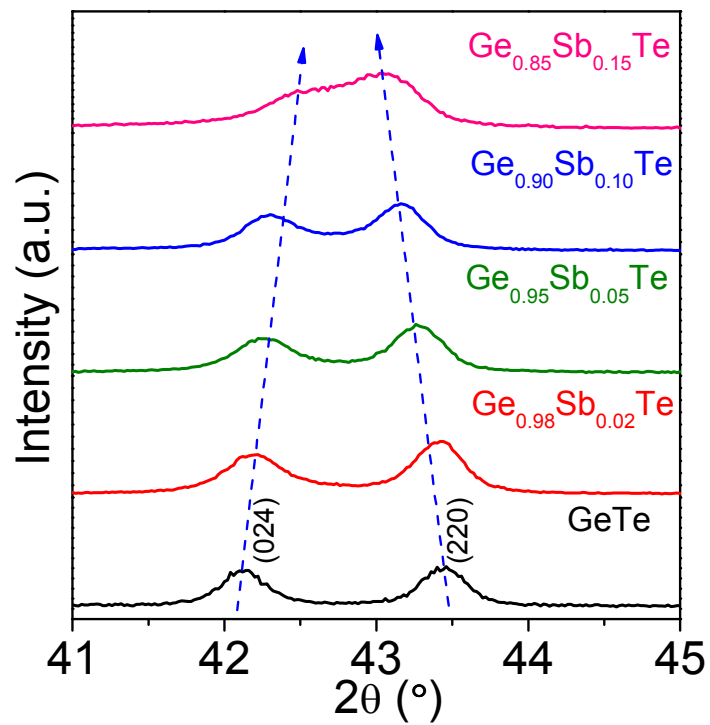


Figure S1. Sb doping in GeTe merges the double peaks of (024) and (220), which confirms the increase in cubic nature with the increase in Sb doping in GeTe.

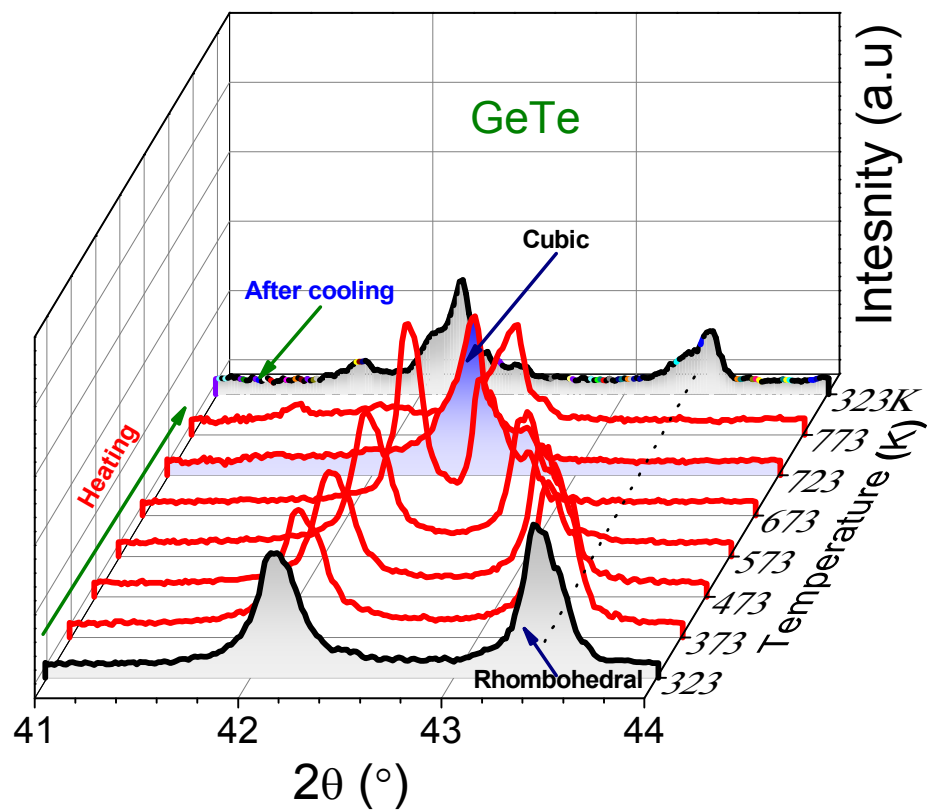


Figure S2. High temperature PXRD pattern of pristine GeTe, shows rhombohedral to cubic structural transition at 723 K.

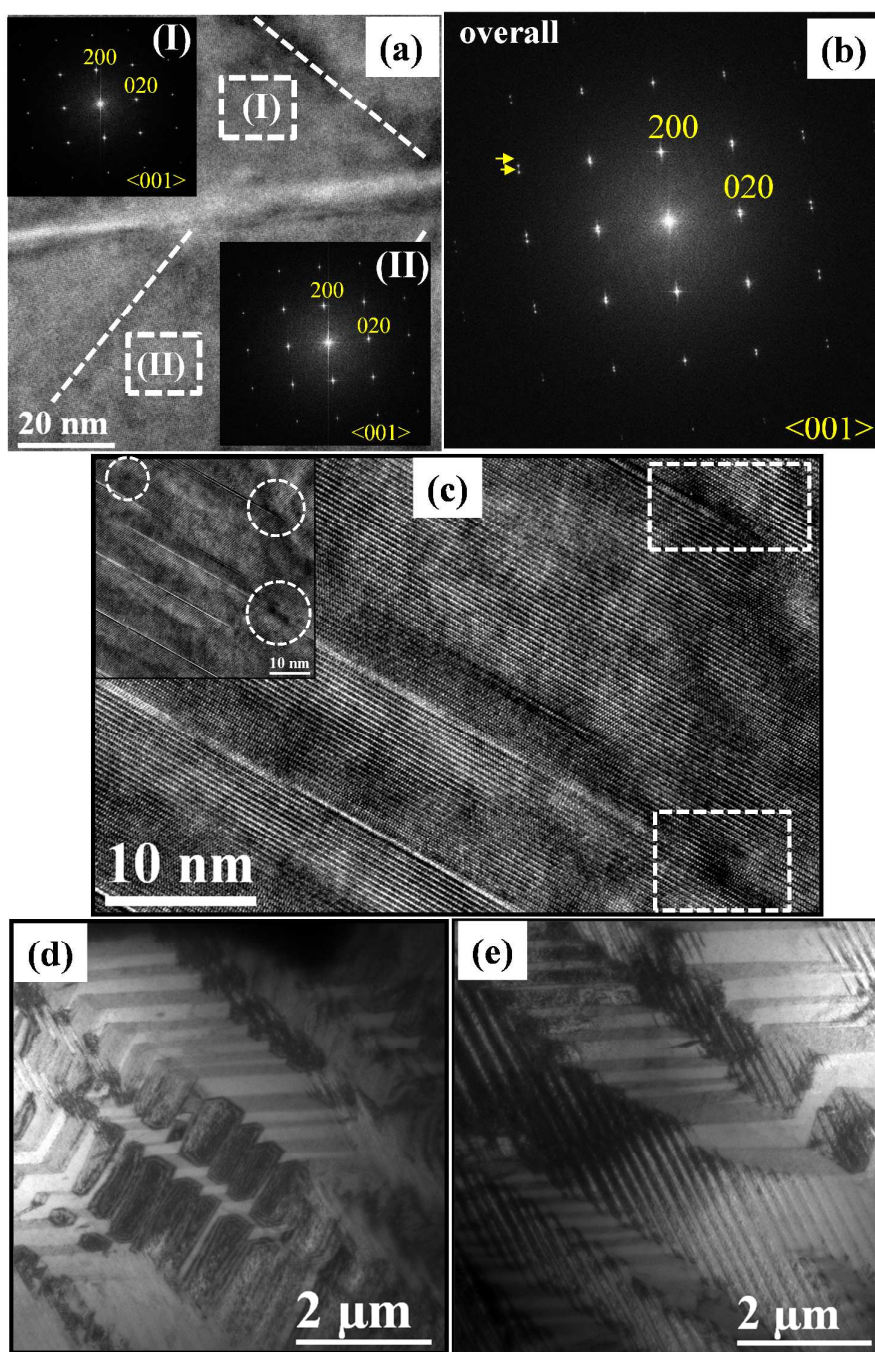


Figure S3. (a) HRTEM micrographs of twin-free (region I and II) where no spot splitting was observed in SAED (see an insets). (b) SAED pattern of overall area of (a) shows clear indication of spots splitting and confirms the twin formations. (c) HRTEM shows formation of defect layers. Dotted area shows the presence of nanoprecipitates. (d) and (e) are domain colonies and herringbone-like structures, respectively.

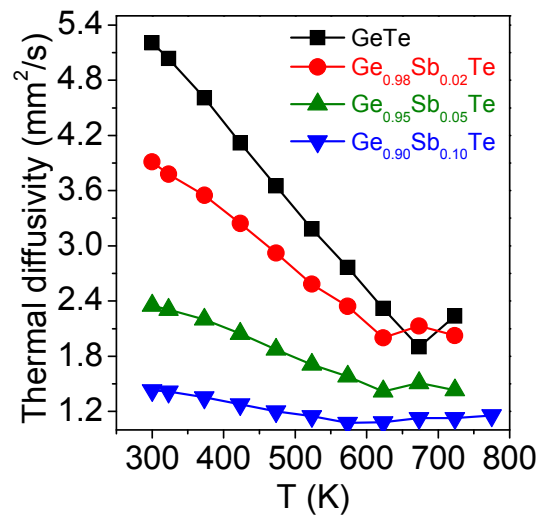


Figure S4. Temperature dependent thermal diffusivity of $\text{Ge}_{1-x}\text{Sb}_x\text{Te}$ ($x = 0-0.10$) samples.

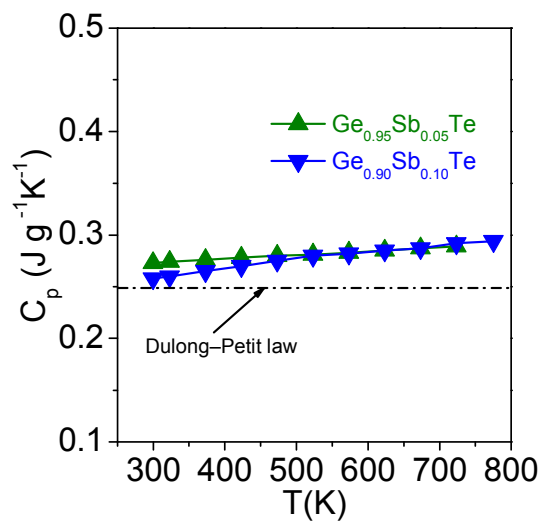


Figure S5. Dulong-Petit C_p and experimentally measured C_p as a function of temperature.

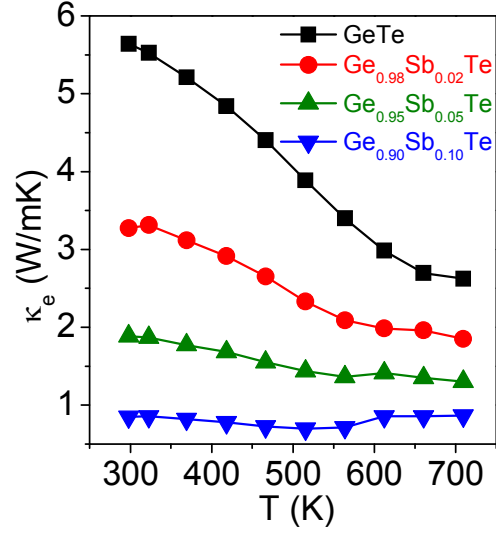


Figure S6. Temperature dependent electronic thermal conductivity of $\text{Ge}_{1-x}\text{Sb}_x\text{Te}$ ($x = 0-0.10$) samples.

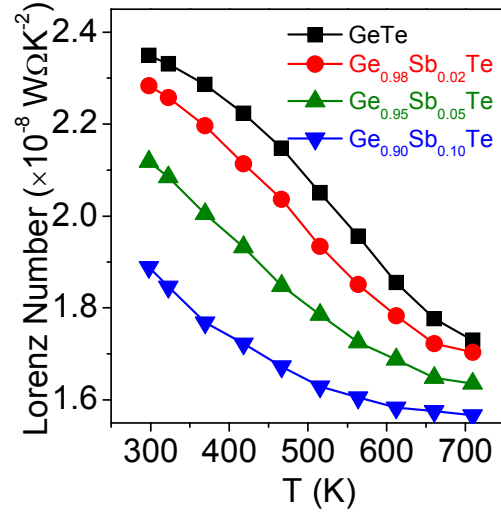


Figure S7. Temperature dependent Lorenz number as a function of temperature.

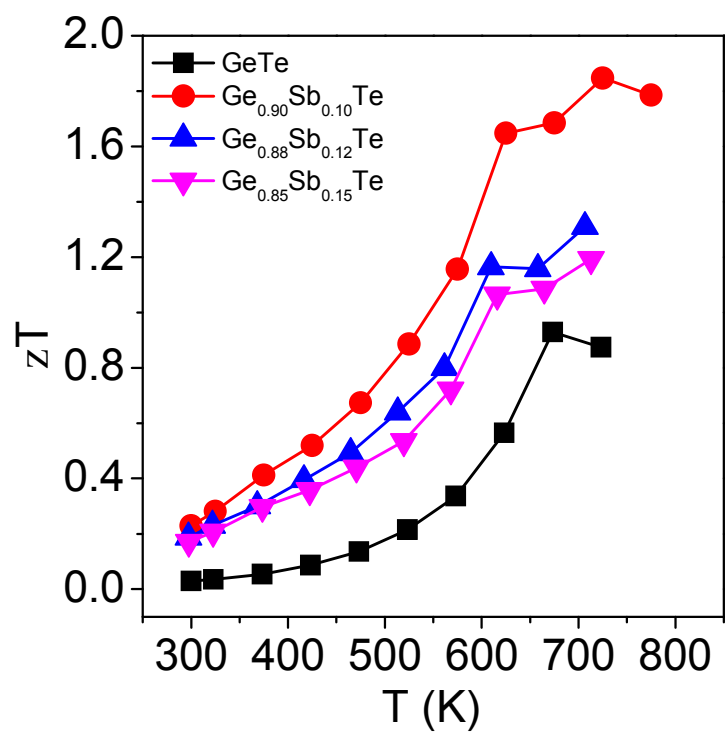


Figure S8. Temperature dependence thermoelectric figure of merit (zT) of $\text{Ge}_{1-x}\text{Sb}_x\text{Te}$ ($x = 0, 0.10, 0.12, 0.15$) samples.

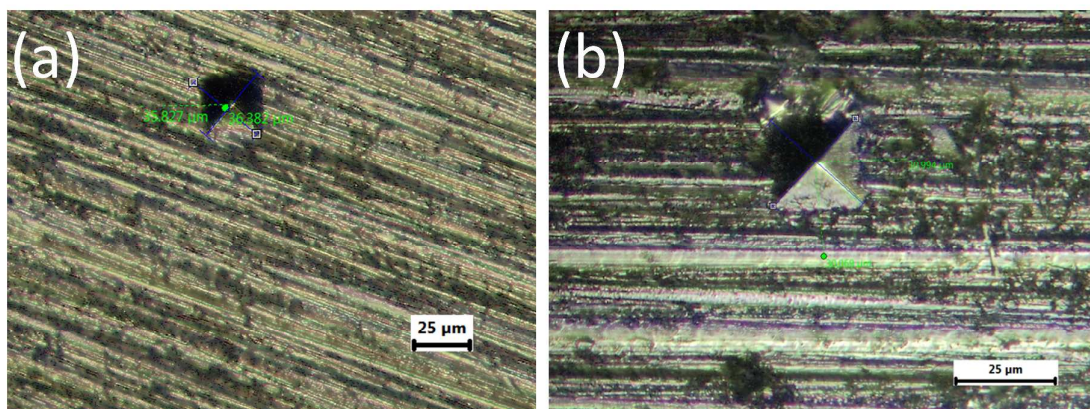


Figure S9. Vickers micro indentation of (a) GeTe and (b) Ge_{0.90}Sb_{0.10}Te, respectively.