Electronic Supporting Information (ESI):

Role of nanoscale defect features in enhancing the thermoelectric performance of p-type nanostructured SiGe alloys

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This supporting information includes:

1. HRTEM analysis of nanostructured SiGe alloy
2. The temperature dependence of thermal conductivity (κ), calculated from the measured thermal diffusivity and specific heat capacity.
3. Temperature dependence electrical transport properties of nanostructured SiGe for different consecutive thermal cycles.

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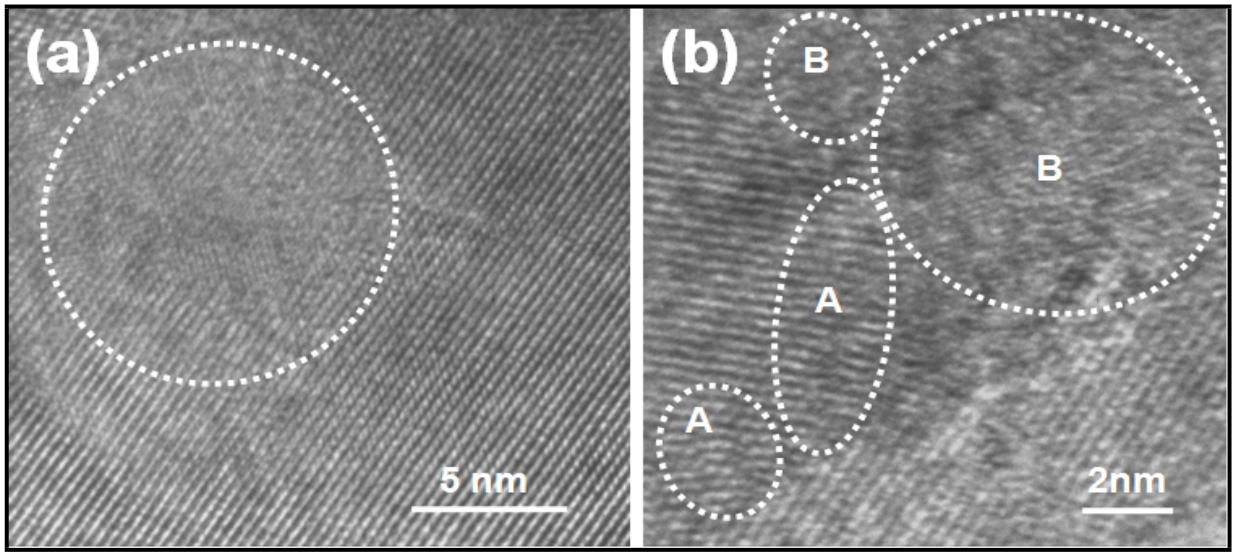

Figure S1: HRTEM atomic scale image of nanostructured $Si_{80}Ge_{20}$ alloy showing (a) region with amorphous phase in a crystalline lattice (white dot line encircled) (b) region (A) comprising of a series of dislocations (edge-type) and also region (B) showing a mushy microstructure of amorphous & crystalline phases.

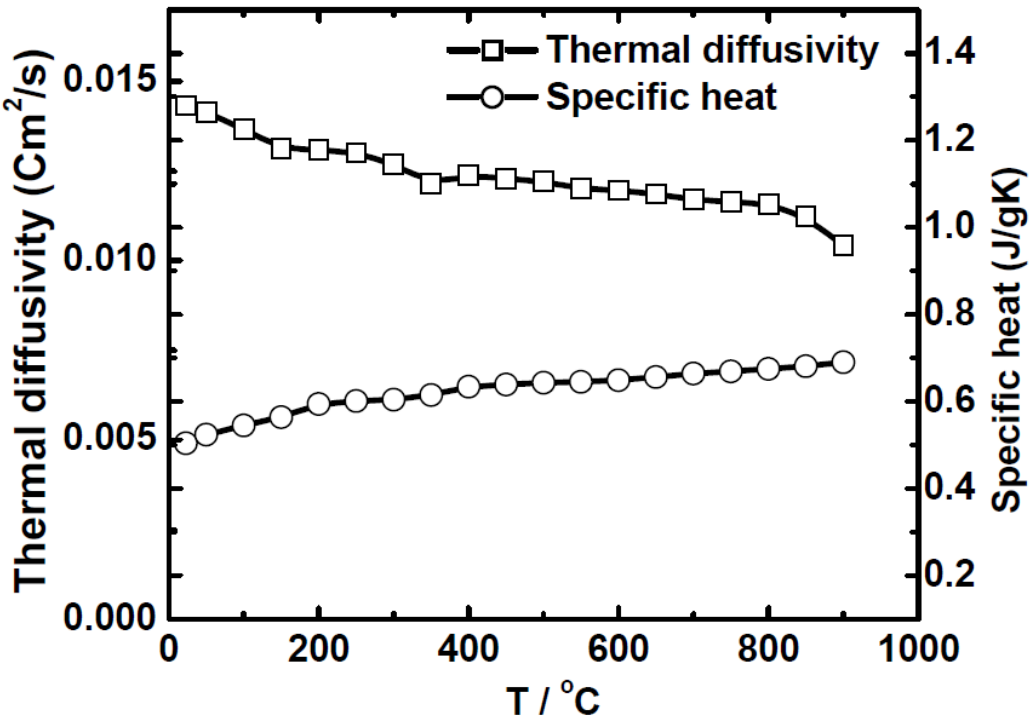

Figure S2: Temperature dependence of thermal conductivity (κ), calculated from the measured thermal diffusivity and specific heat capacity.

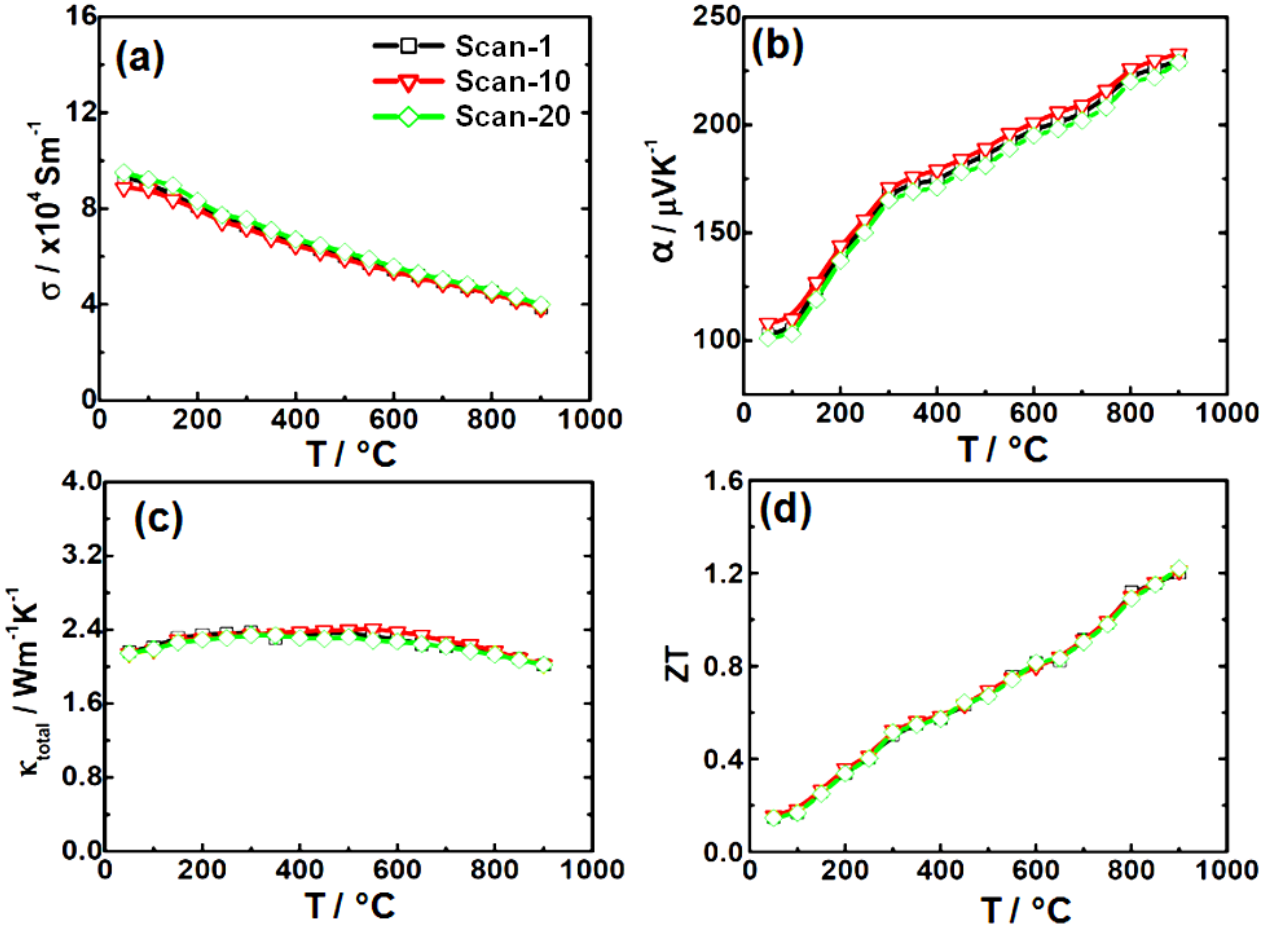

Figure S3: *(Color online)* Temperature dependence electrical transport properties of nanostructured *SiGe* for different thermal cycles (a) Electrical conductivity (b) Seebeck coefficient (c) Thermal conductivity (d) ZT