Supplementary Information

Galvanic Displaced Ultra-long $Pb_xSe_yNi_z$ Hollow Nanofibers with High Thermopower

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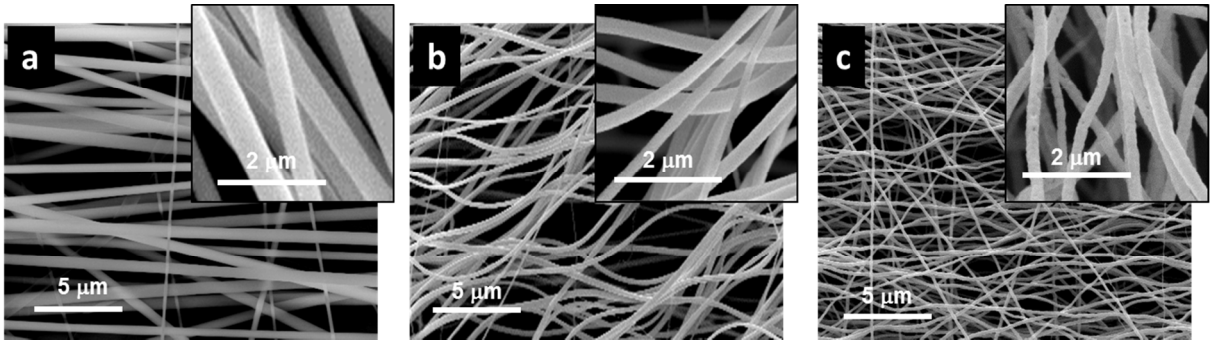

Figure S1. SEM images of (a) electrospun PVP/Ni acetate nanofibers, (b) NiO nanofibers, (c) Ni nanofibers.

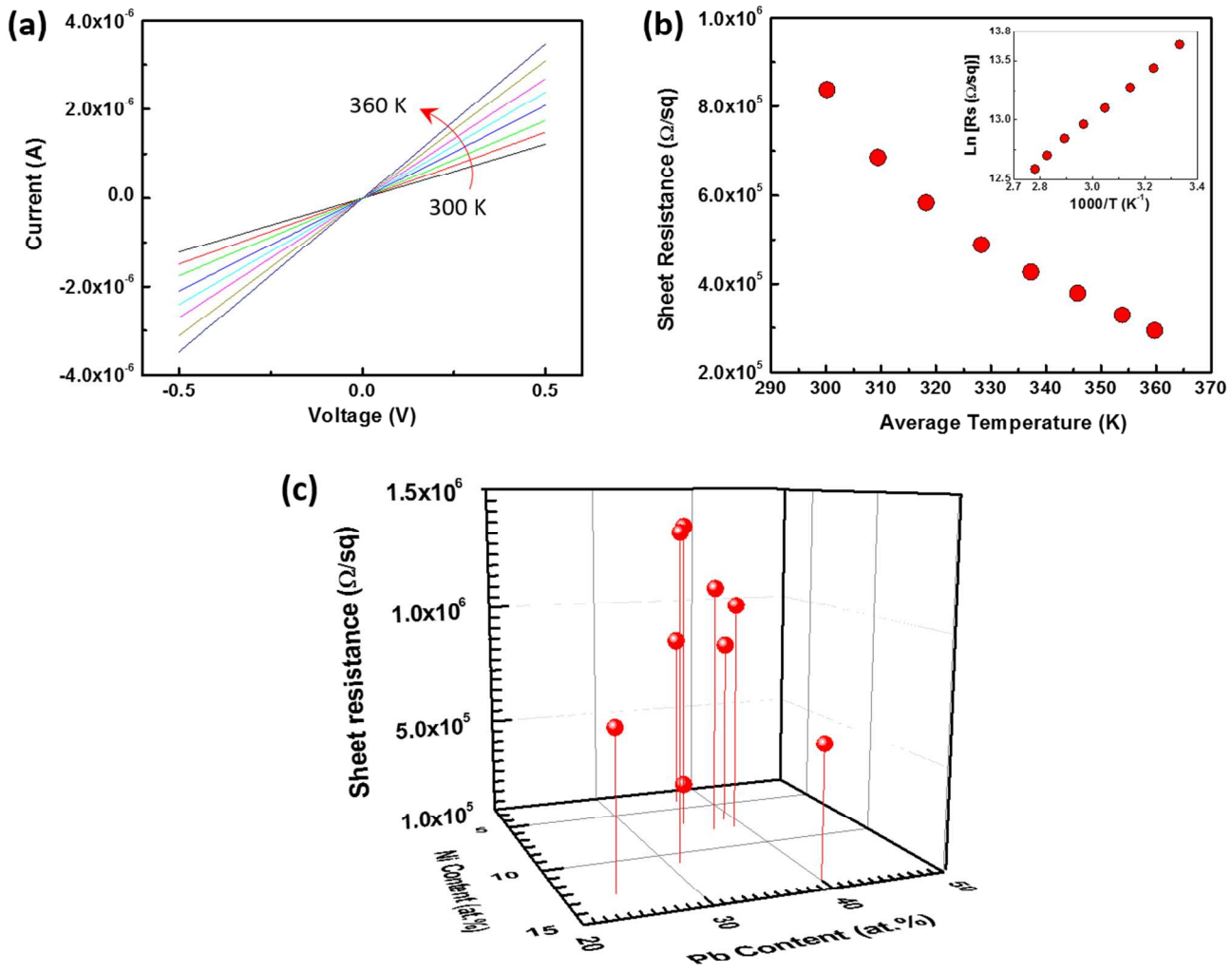

Figure S2. Temperature dependent (a) I-V characterization and (b) sheet resistance of $Pb_{37}Se_{59}Ni_4$ NF mat. (c) 3D plot of Seebeck coefficient of $Pb_xSe_yNi_z$ nanofiber mat at 300 K as a function of Ni and Pb content.

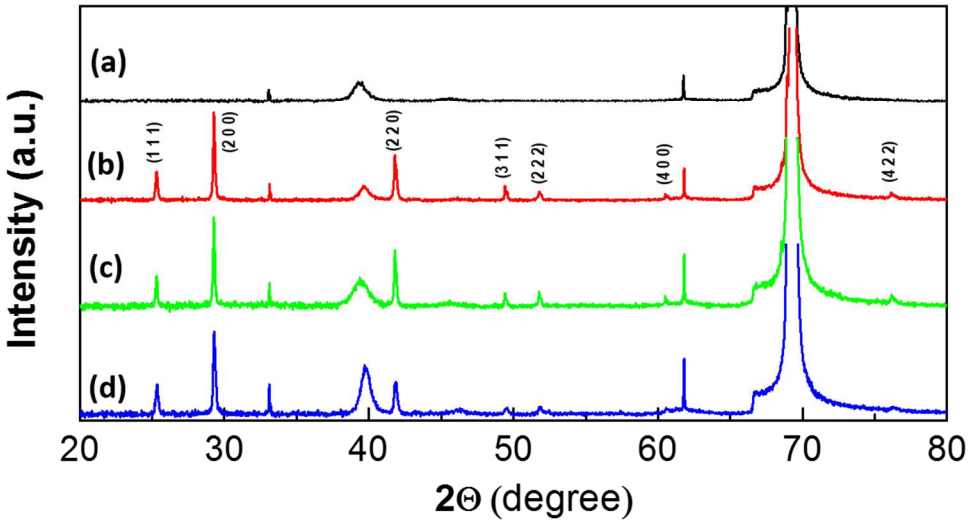

Figure S3. XRD pattern of (a) substrate, (b) $Pb_{31}Se_{62}Ni_7$, (c) $Pb_{35}Se_{58}Ni_7$, (d) $Pb_{37}Se_{59}Ni_4$ hollow nanofiber mats. Substrate peaks are contributed from Si, Pt electrode and sample holder.

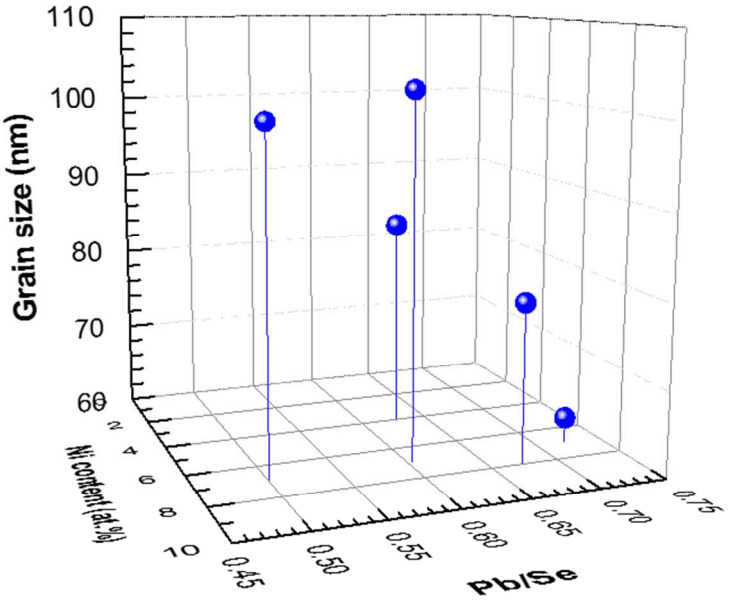

Figure S4. 3D plot of $Pb_xSe_yNi_z$ nanofiber mats' grain size as a function of Ni content and the ratio of Pb to Se content.

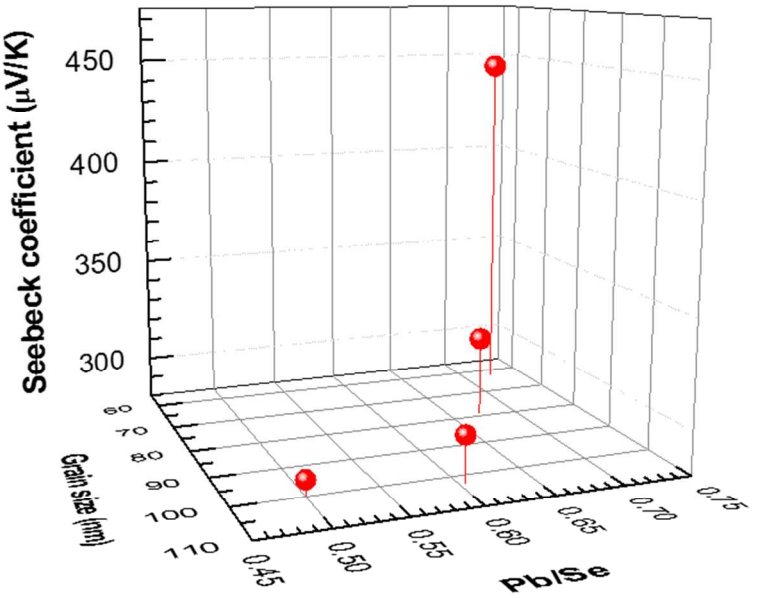

Figure S5. 3D plot of $Pb_xSe_yNi_z$ nanofiber mats' Seebeck coefficient at 300 K as a function of Ni content and the ratio of Pb to Se content.

Reference:

1. Jung, H.; Park, D. Y.; Xiao, F.; Lee, K. H.; Choa, Y. H.; Yoo, B.; Myung, N. V., Electrodeposited Single Crystalline PbTe Nanowires and Their Transport Properties. *J Phys Chem C* **2011,** *115* (7), 2993-2998.

2. Wang, H.; Pei, Y. Z.; LaLonde, A. D.; Snyder, G. J., Heavily Doped p-Type PbSe with High Thermoelectric Performance: An Alternative for PbTe. *Advanced Materials* **2011,** *23* (11), 1366-1370.

3. Kishimoto, K.; Koyanagi, T., Preparation of sintered degenerate n-type PbTe with a small grain size and its thermoelectric properties. *J Appl Phys* **2002,** *92* (5), 2544-2549.