

Supporting information

Flexible Thermoelectric Generators with Inkjet Printed Bismuth Telluride Nanowires and Liquid Metal Contacts

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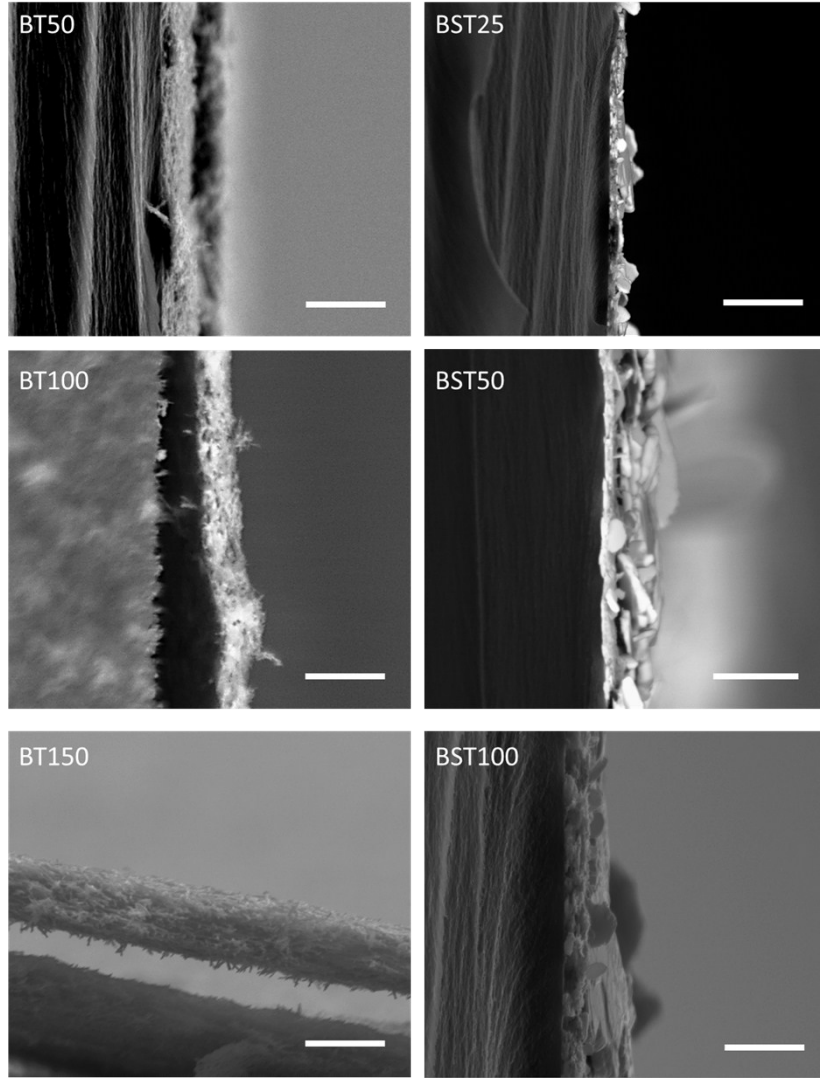


Figure S1. Cross-section SEM micrographs of BT50, BT100, BT150, BST25, BST50, and BST100 annealed at 450 °C for 10 minutes, scale bar 2 μm.

The average thickness of the BT50, BT100, BT150, BST25, BST50, and BST100 printed nanowires correspond to $0.57\mu\text{m} \pm 0.098$, $0.89\mu\text{m} \pm 0.064$, $1.56\mu\text{m} \pm 0.050$; $0.37\mu\text{m} \pm 0.040$, $0.62\mu\text{m} \pm 0.077$, $0.94\mu\text{m} \pm 0.12$ measured from the acquired SEM images in Fig. S1 and analyzed through ImageJ software. The thickness values were acquired as an average of 4 data points (n=4) for each sample.

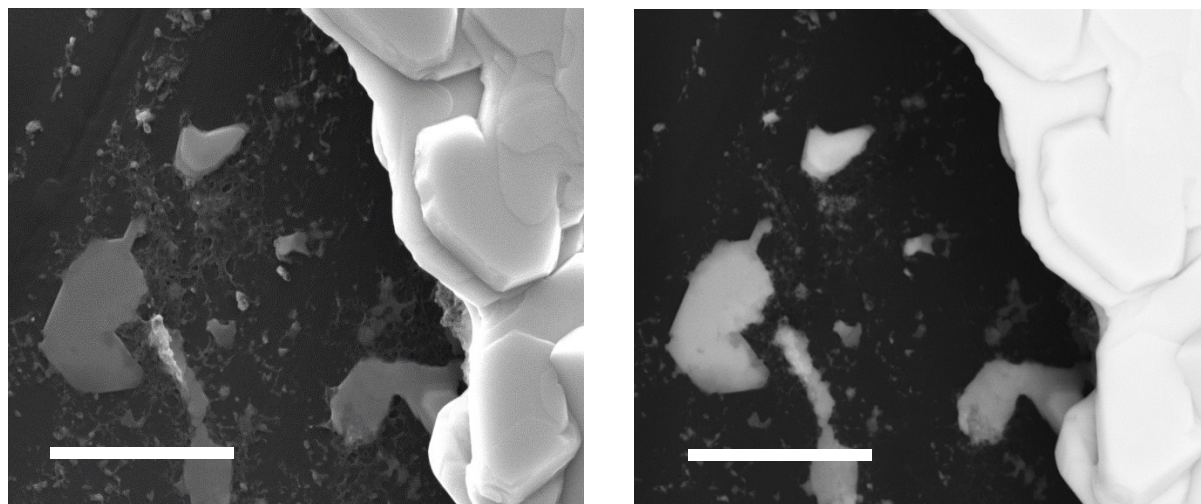


Figure S2. Comparison of the SEM secondary electron image (left) and SEM back scatter image (right) shows the degradation of the printed BST50 nanowire film. The darker surface is exposed polyimide while the lighter surface is the printed BST50 nanowire film. Hence holes (dark spots) are visible in the film. Scale bars represent 2 μm .

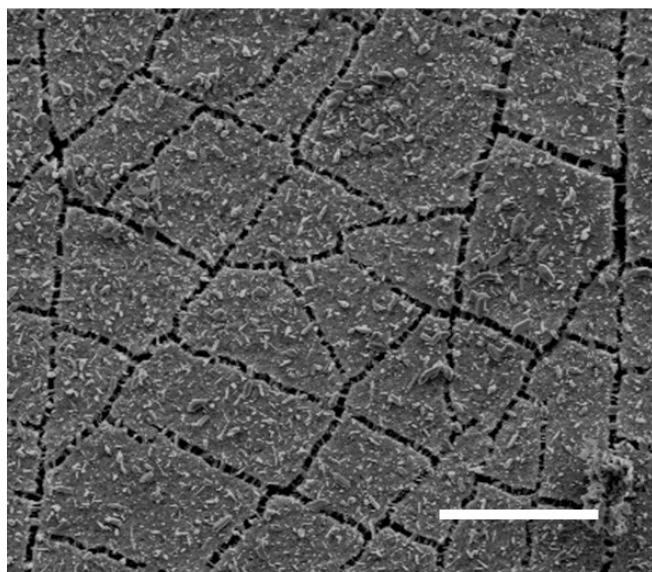


Figure S3. SEM images displaying morphology of BST50 films after thermal annealing at 450 $^{\circ}\text{C}$ for 2 hours, scale bar 20 μm . Notable cracks or fissures are present in the printed BST film.

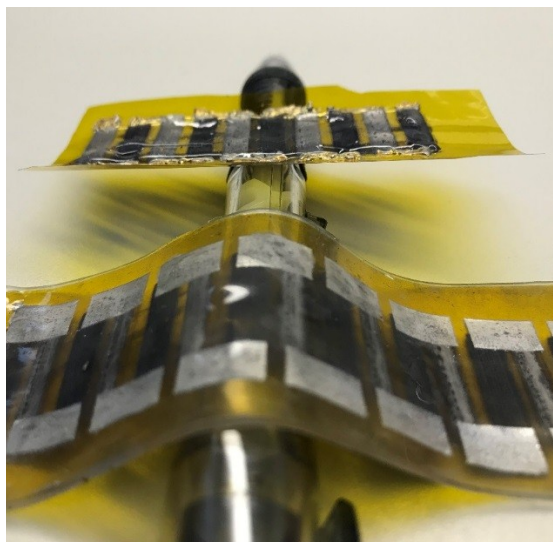


Figure S4. Optical images displaying inherent rigidity of the thermoelectric p/n legs electrically connected with silver paste (upper) vs. the thermoelectric flexibility of p/n legs connected with liquid metal(lower).

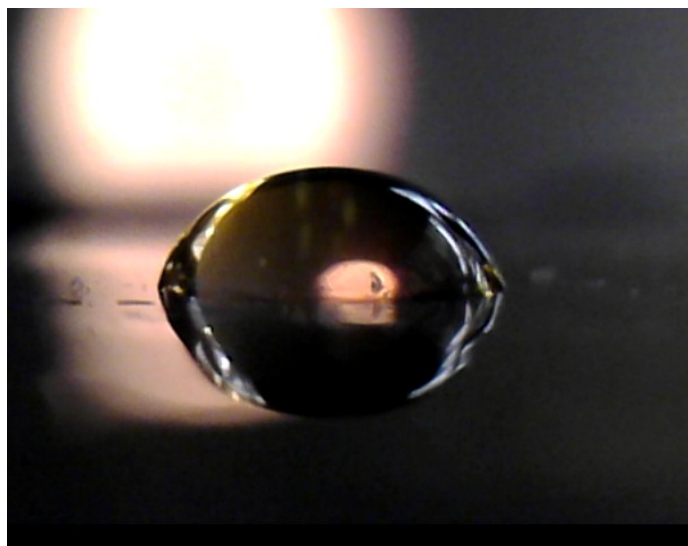


Figure S5. Optical images displaying contact angle measurement of water on polyimide substrate.