Supporting Information

Tailoring Temperature Coefficient of Resistance of Silver Nanowire Nanocomposite and Application as Stretchable Temperature Sensor

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Resistance vs. Temperature

Additional resistance vs. temperature data for samples with different NW densities are shown in **Figure S**1.

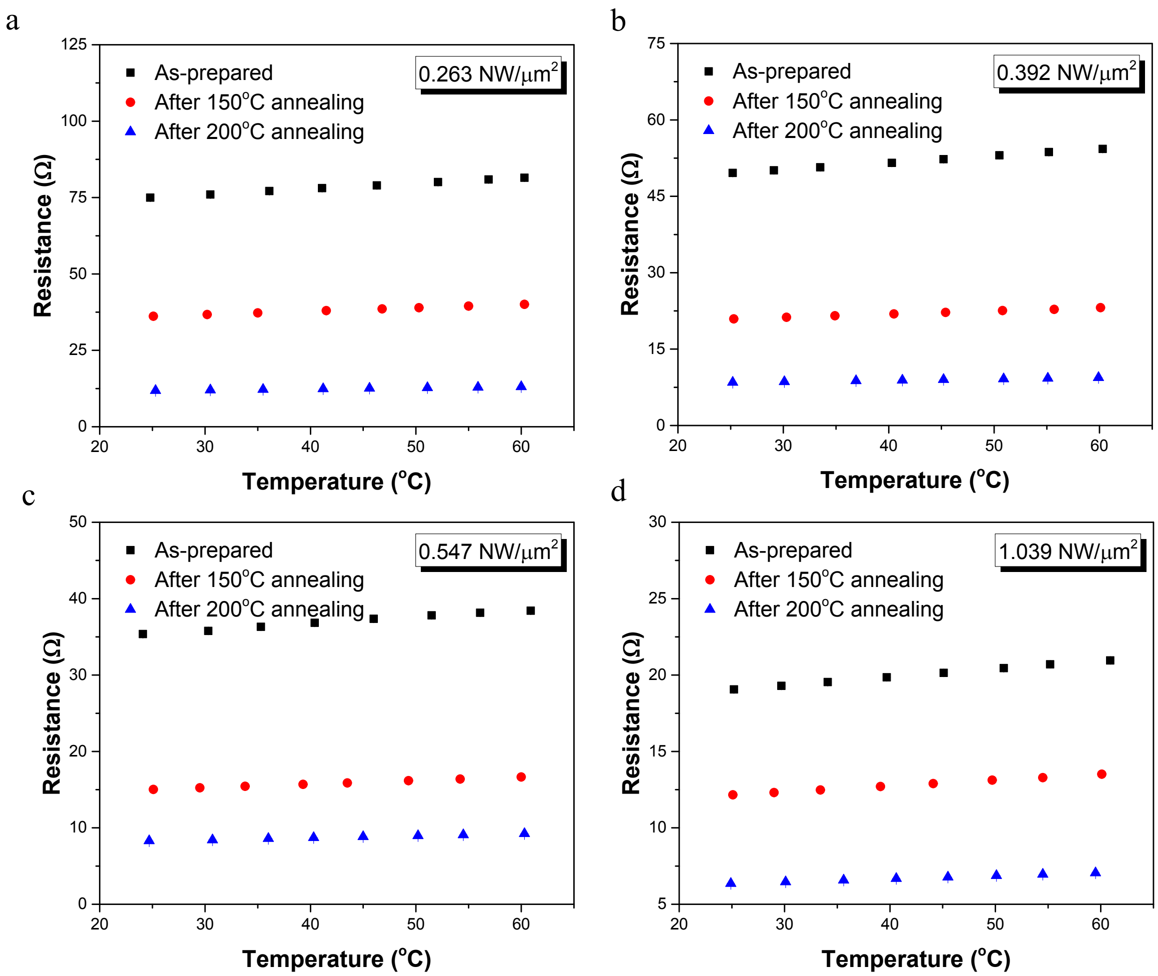

Figure S1 Resistance vs. temperature for samples with different nanowire densities before and after different annealing temperatures. The nanowire densities of the samples presented are a) 0.263, b) 0.392, c) 0.547, and d) 1.039 NW/μm2, respectively.

Transmittance of AgNW networks with different nanowire densities

Optical transmittances of AgNW networks with different NW densities are provided for reference.

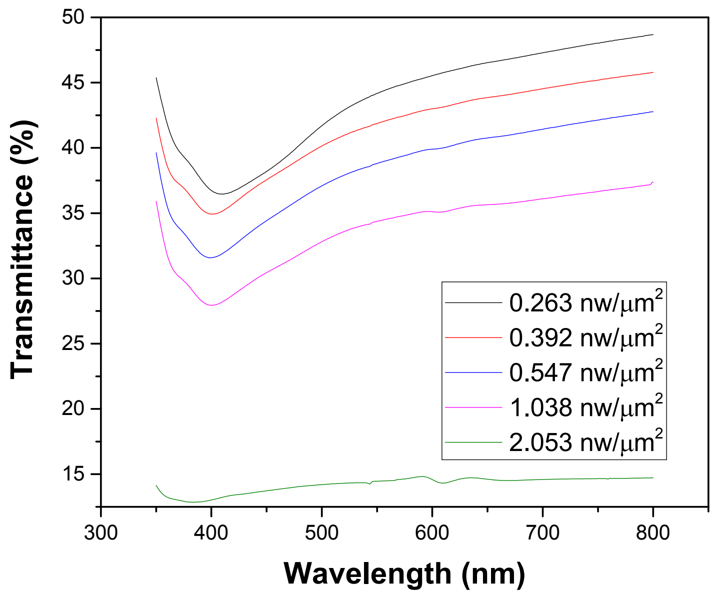

Figure S2 Transmittance of the prepared AgNWs percolation network on glass slide.

Designed Kirigami Structure

The designed Kirigami structure has a length L of 38 mm, width W of 9 mm, length of patterned region L of 18 mm and thickness t of 8 μm. In the repeated pattern, the slit length L_{slit} is 6 mm, slit gap L_{gap} is 2 mm, beam width W_{beam} is1 mm. To avoid the stress concentration at the edge of slits, rounded edges with a radius of 0.2 mm was introduced.

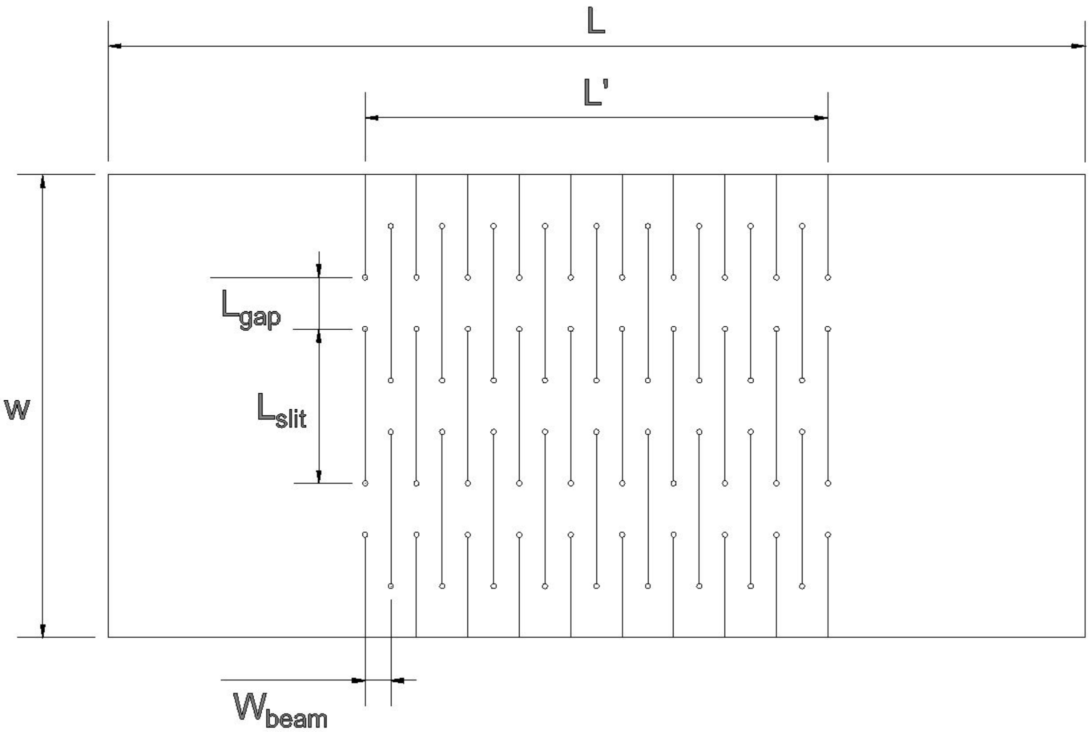

Figure S3 Schematic of the designed AgNW/PI temperature sensor. L_{slit} is the length of slit. L_{gap} is the gap between two slits. W_{beam} is the width of bending beam. L' is the length of Kirigami structure. L and W are the length and width of sensor, respectively.

Finite element analysis

3D FEA of the stretching of the PI Kirigami structure was carried out in Abaqus 6.14. The structure is L = 38 mm long, W = 9 mm wide and has a thickness t = 9 µm, in accordance with the experiments. Four-node curved shell with reduced integration elements (S4R) was used to model PI. Isotropic linear elastic behavior was assumed with Young's modulus of 2.5 GPa and Poisson's ratio of 0.34. The structure was subjected to 100% strain, while a small perturbation force was applied at selected nodes during the initial stages of the simulation in order to trigger out-of-plane displacement.