Fabric-based superhydrophobic ACNTs/Cu/PDMS heater with excellent electrothermal effect and deicing performance

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\textbf{Fig. S1:} Photos of the PDA/ACNTs fabric connected to light-emitting diode (LED) lights.

\textbf{Fig. S2:} The SEM image of the original fabric magnified 70 times.
**Table 1:** Elemental Content in EDS spectrum. (Average value of five experiments)

<table>
<thead>
<tr>
<th>Element</th>
<th>Wt%</th>
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<tbody>
<tr>
<td>O</td>
<td>5.7</td>
</tr>
<tr>
<td>Si</td>
<td>4.3</td>
</tr>
<tr>
<td>Cu</td>
<td>90.0</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
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**Fig. S3:** EDS quantitative surface analysis of the PDA/ACNTs/Cu PDMS fabric. (Values are the average of five experiments.)

**Fig. S4:** Thickness of the PDA/ACNTs/Cu PDMS fabric. (Values are the average of five experiments.)
Fig. S5: The Self-cleaning ability test of dust particles on the surface of the PDA/ACNTs/Cu/PDMS fabrics.

Fig. S6: The SAs of the the PDA/ACNT/Cu/PDMS fabric (A) after immersed in an acidsolution of pH=4 for different time; (B) after immersed in an acidsolution of pH=4 for different time; (C)throught different times of bending;(d) after different time of ultrasonic treatment. (Values are the average of five experiments.)
Fig. S7: I-V curve of the PDA/ACNT/Cu/PDMS fabric. (Values are the average of five experiments.)

![I-V curve of the PDA/ACNT/Cu/PDMS fabric](image)

Fig. S8: Apply voltage across the PDA/ACNT/Cu/PDMS fabric and observe the changes of water droplets on the surface.

Supplementary video 1: The Self-cleaning ability test of dust particles on the surface of the PDA/ACNTs/Cu/PDMS fabrics. [Supplementary video 1.mp4](#)

Supplementary video 2: A voltage of 1.0V is applied across the PDA/ACNT/Cu/PDMS fabric, and the ice cube changes in real time on the surface. [Supplementary video 2.mp4](#)

Supplementary video 3: At room temperature, the ice cube changes on the PDA/ACNT/Cu/PDMS fabric. [Supplementary video 3.mp4](#)