# Electronic supplementary information

# Carbon-nanotube bridge fabricated by laser comb

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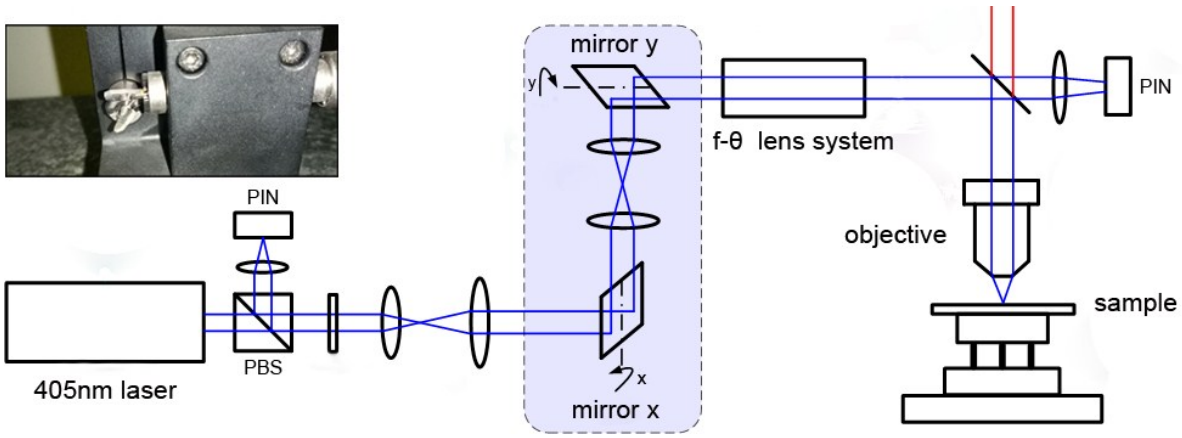


**Fig. S1** Main optical system to carry out the Laco method. The inset at the top left is the real photo of two vibrating mirrors (X and Y).

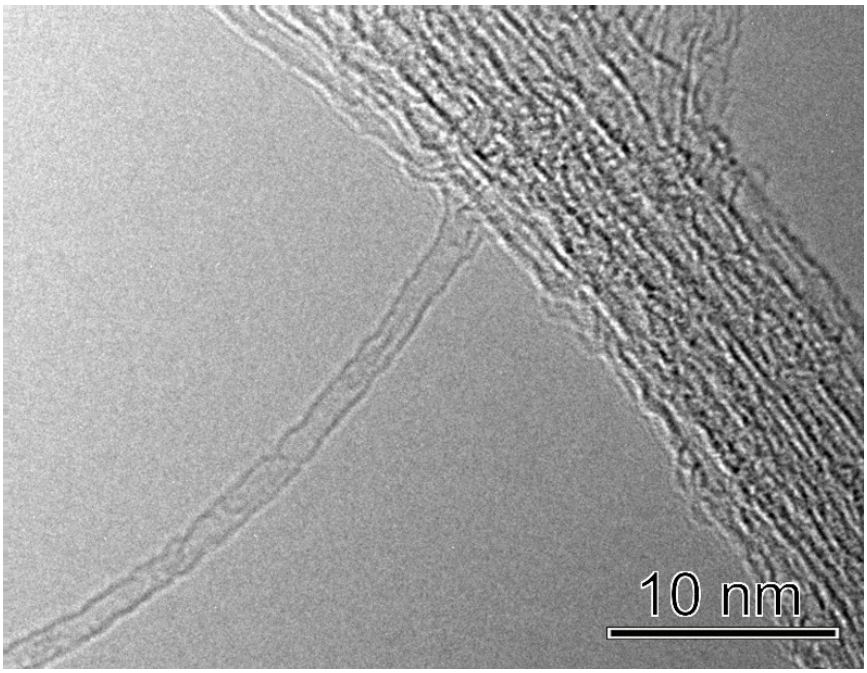


**Fig. S2** TEM image of the single-walled carbon nanotubes (SWNTs) grown by chemical vapor deposition (CVD)

As shown in the left of Fig. S2, a individual carbon nanotube displays a typical single-walled feature and the diameter of this individual nanotube is about 1.5 nm. As shown in the right of Fig. S2, individual SWNTs can also aggregate into bundles.

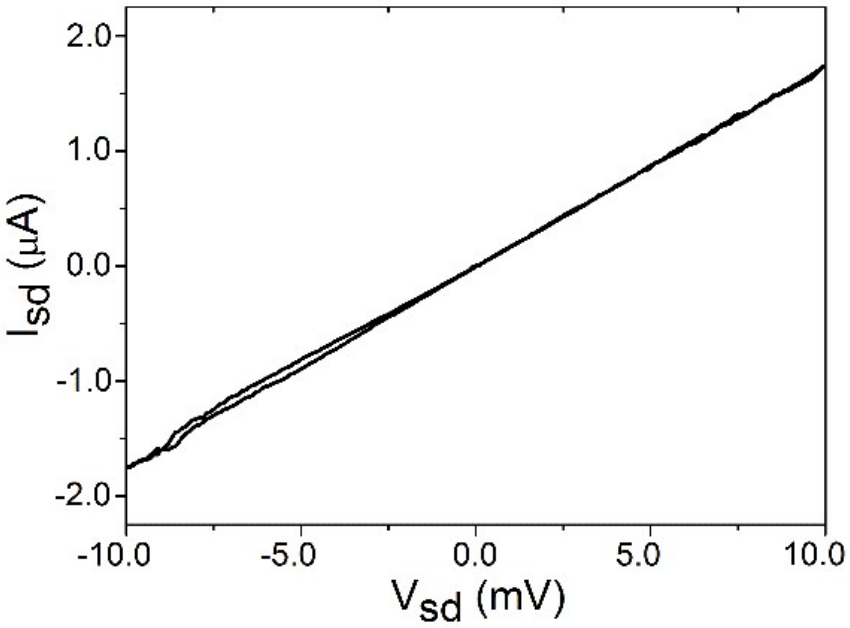


**Fig. S3** Typical two-terminal current-voltage characteristic of the connected CNTs network.

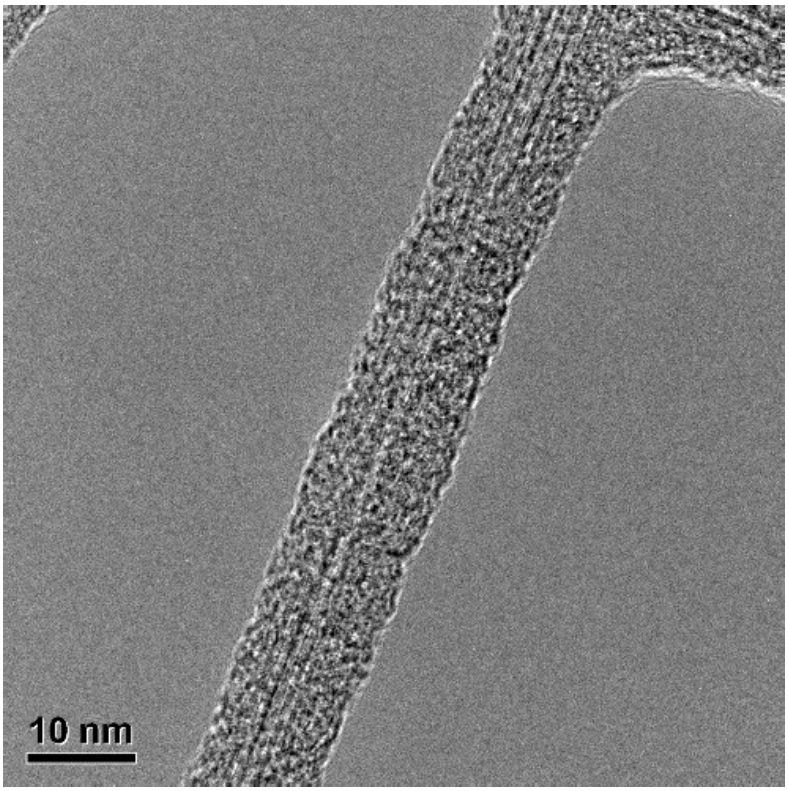


**Fig. S4** TEM image of the single-walled carbon nanotubes (SWNTs) after laser direct writing

**Table S1**. Material properties used in the numerical simulation.

| Material properties | Value |
|---|---|
| Density of carbon nanotube ($kg \cdot m^{-3}$) | 1350 [1] |
| Density of $SiO_2$ ($kg \cdot m^{-3}$) | 2200 [2] |
| Density of Si ($kg \cdot m^{-3}$) | 2330 [3] |
| Thermal conductivity of carbon nanotube ($W \cdot m^{-1} \cdot K^{-1}$) | 3500 [4] |
| Thermal conductivity of $SiO_2$ ($W \cdot m^{-1} \cdot K^{-1}$) | 1.4 [2] |
| Thermal conductivity of Si ($W \cdot m^{-1} \cdot K^{-1}$) | 148 [5] |
| Specific heat of carbon nanotube ($J \cdot kg^{-1} \cdot K^{-1}$) | 78.3 [1] |
| Specific heat of $SiO_2$ ($J \cdot kg^{-1} \cdot K^{-1}$) | 937 [2] |
| Specific heat of Si ($J \cdot kg^{-1} \cdot K^{-1}$) | 705 [5] |

## REFERENCES


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