SUPPORTING INFORMATION FOR

Ultrathin High-Mobility SWCNT Transistors with Electrodes Printed by Nanoporous Stamp Flexography

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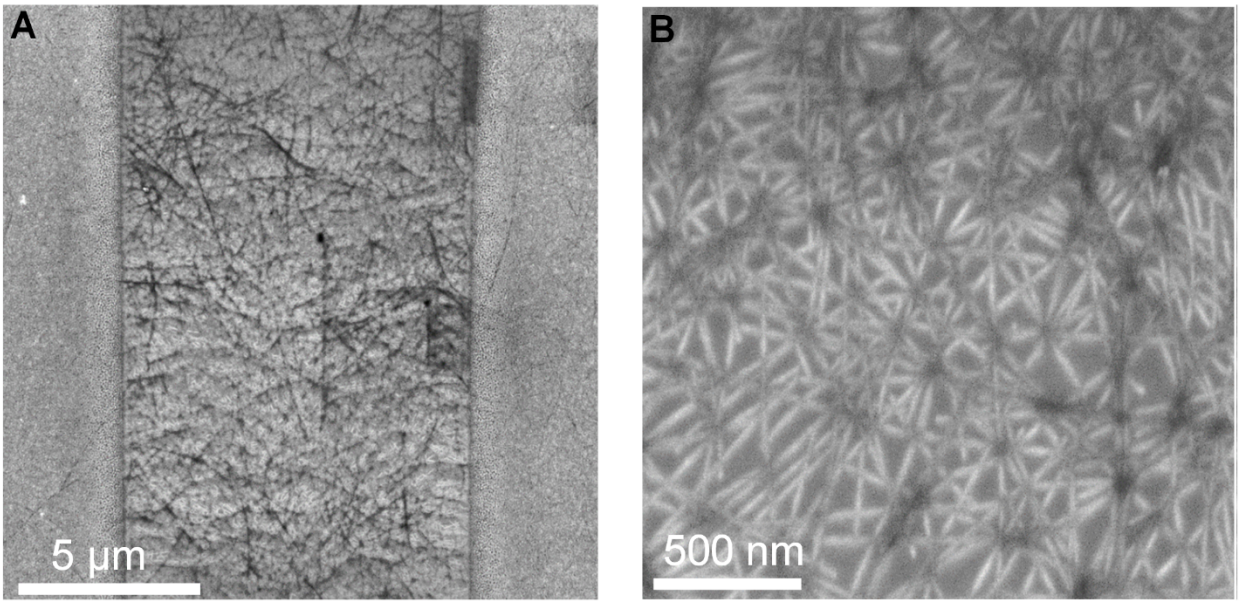

Figure S1: Fabrication of transistor by printing silver nanoparticles and forming a continuous layer by sintering and deposition of SWCNT networks with organic solvent based ink A) Top-contact SWCNT semiconducting layer formed from deposition of organic solvent based high-purity (99.9% semiconducting SWCNTs) ink B) The density of SWCNT networks is >40 SWCNTs/µm^2

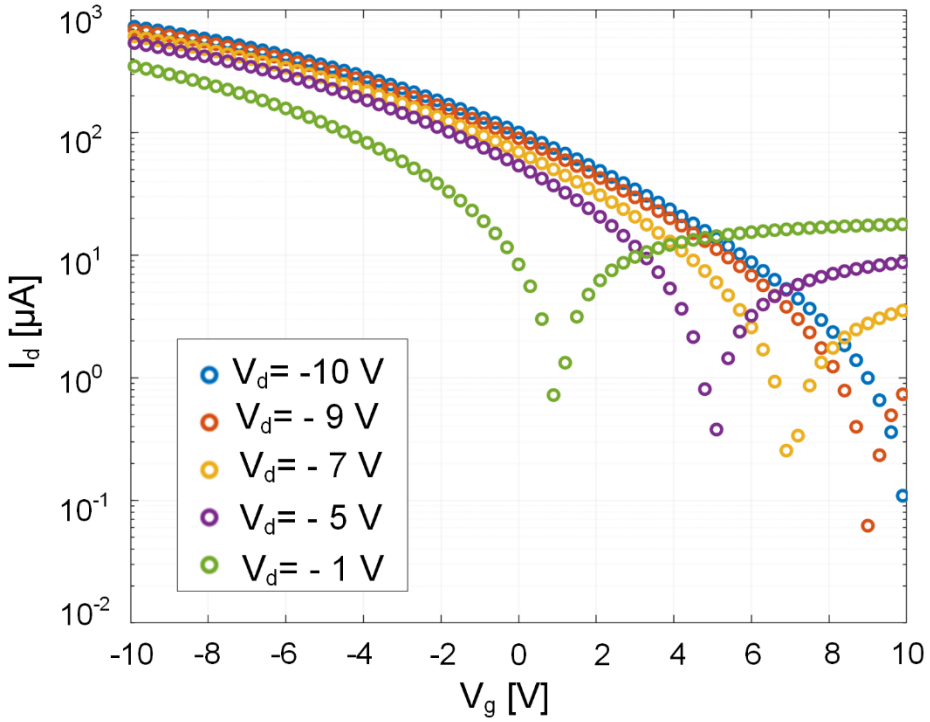

Figure S2: Transfer characteristics of the transistor (channel length 7 µm) for drain voltages varying from 1-10V.

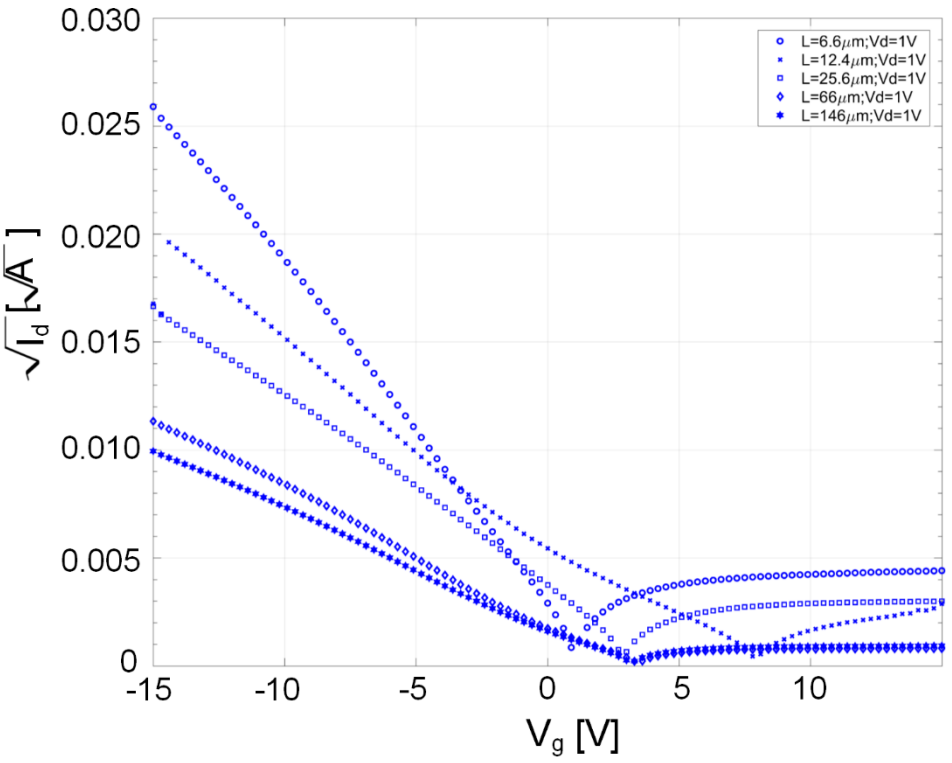

Figure S3: Transfer Characteristics of the transistors with channel lengths varying from 6.6 to 146 µm plotted as $\sqrt{I_d}$ against V_g for calculation of mobility and on-off ratio.

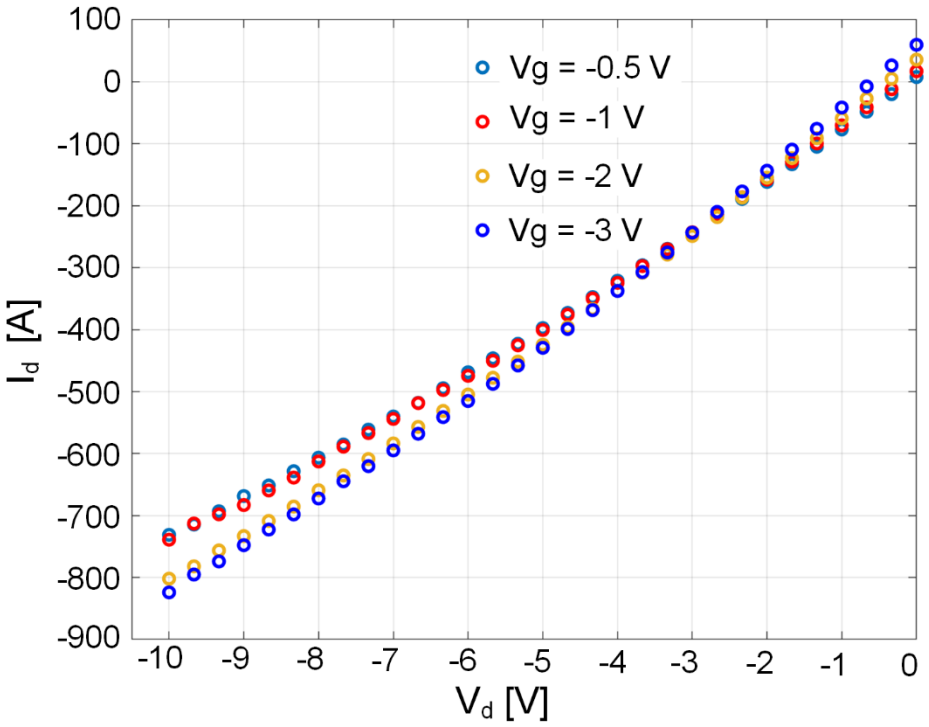

Figure S4 : Output characteristics of the transistor (channel length 7 µm) for gate voltages varying from -3V to -0.5V.

Channel length	On-off ratio	Mobility
µm		cm^2/Vs
6.6	926.9	13.8
12.4	1452.2	9.9
25.6	496.6	16.9
66	2819.6	23.5
146	1483.4	39.5

Table S1: On-off ratio and mobility values for the transistors calculated from the transfer characteristics.

Mobility calculation using model for linear region

The output characteristics (Fig. S3) shows that the device is not in the saturation region. The mobility was also calculated using the slope of the transfer characteristics (Fig. 3B) and applying the 'linear region' model given by the following expression.

$$I_d = \left(\frac{\mu C_{ox} W}{L}\right)\left((V_g - V_T)V_d - \frac{V_d^2}{2}\right)$$

The mobility value is ~11-16 cm^2/Vs for Vg=-10 to -6V. The mobility calculated using the 'saturation region' model for this device (channel length ~7µm) is 13.8 cm^2/Vs, which is not significantly different.