

Supporting Information for

Self-assembly of carbon nanotube polyhedrons inside microchannels

Jiangying Qu,^a Zongbin Zhao,^a Jieshan Qiu,^{*a} Yury Gogotsi^b

^aCarbon Research Laboratory, Center for Nano Materials and Science, State Key Laboratory of Fine Chemicals, School of Chemical Engineering, and Key Laboratory for Micro/Nano Technology of Liaoning Province, Dalian University of Technology, Dalian 116012, China

^bDepartment of Materials Science and Engineering, Drexel University, 3141 Chestnut Street, Philadelphia, Pennsylvania 19104, USA

*Corresponding author. E-mail address: jqiu@dlut.edu.cn

Figure S1. Schematic diagram of the experimental set-up.



Figure S2. SEM image of CNT polyhedrons formed on the upper plate of the SiO_2/Au sandwich.

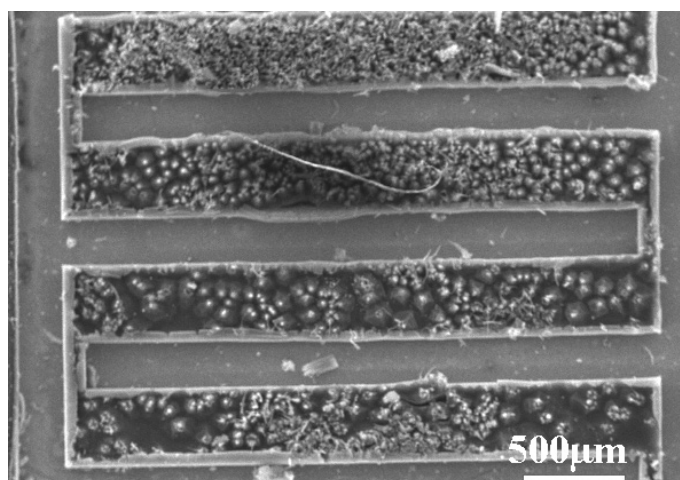


Figure S3. SEM images of CNT polyhedrons inside different channels of (a) #1 (b) # 6 of 8 along the gas flow path.

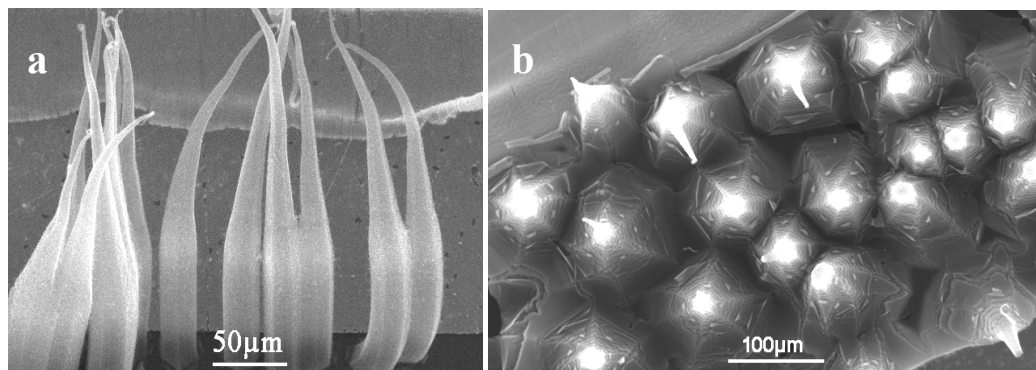


Figure S4. Schematic illustration of a base growth process of CNT polyhedron.

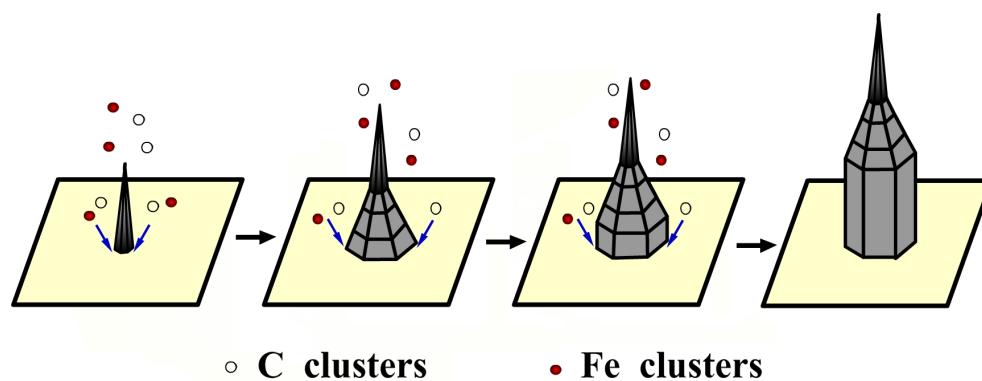


Figure S5. SEM images of different parts of a typical CNT-based polyhedron: (a) flattened tip, probably resulting from the contact with the upper plate covering the microchannel assembly, (b) serpentine tail buckled due to the contact with the upper plate, (c) polygonal dome, (d) column of well-aligned CNTs.

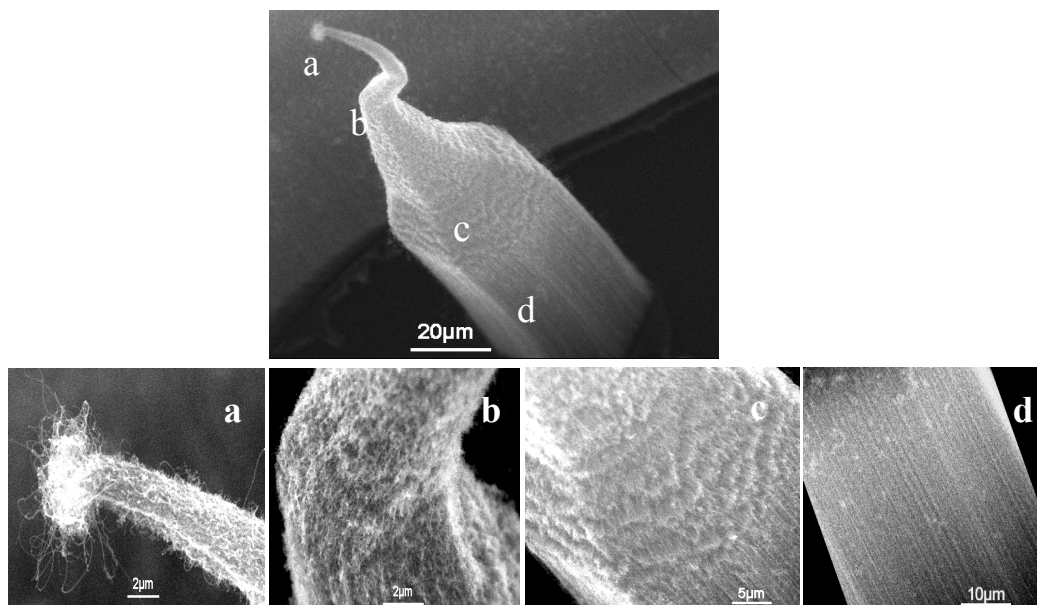


Figure S6. The wettability is evaluated by measuring the contact angle (CA) of water of CNT patterned surfaces on the substrate (Contact Angle System, Dataphysics OCA20). Shapes of water droplets on the surface of the substrate with (a) CNT polyhedrons on an open substrate and (b) CNT forest on the capped substrate are shown. The CA was about 162° and 144° , respectively, showing the CNT-patterned polyhedral structures are superhydrophobic.

