

## Supporting Information

# **Bio-inspired Dry Adhesive Pads using Multi-Walled Carbon Nanotube/Polydimethylsiloxane Composites for Efficient Wafer Transfer Robot Arms in Smart Factories**

*Bom Lee<sup>†,a</sup>, Young Chun Ko<sup>†,a</sup>, Simon Kim<sup>a</sup>, Su Eon Lee<sup>a</sup>, Ho Jun Jin<sup>a</sup>, Dong Joon Chang<sup>c</sup>, Min-Ho Park<sup>a,\*</sup> and Bong Hoon Kim<sup>b,\*</sup>*

<sup>a</sup>Department of Materials Science and Engineering, Soongsil University, 369 Sangdo-Ro, Dongjak-Gu, Seoul 06978, Republic of Korea

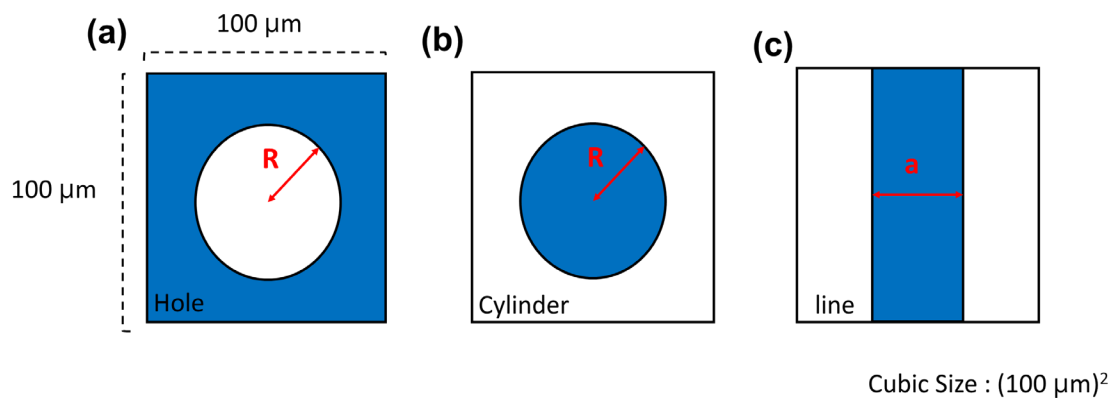
<sup>b</sup>Department of Robotics and Mechatronics Engineering, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Daegu, Republic of Korea.

<sup>c</sup>Glint Materials, Gwonseon-gu, Suwon, Gyeonggi-do, Republic of Korea.

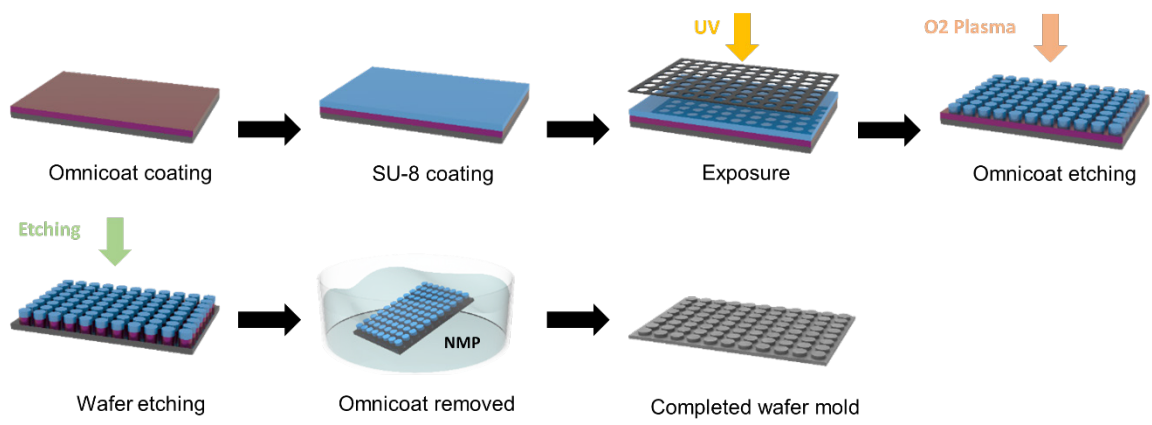
### CORRESPONDING AUTHOR

Tel: +82(0)53-785-6205, FAX: +82(0)53-785-6209

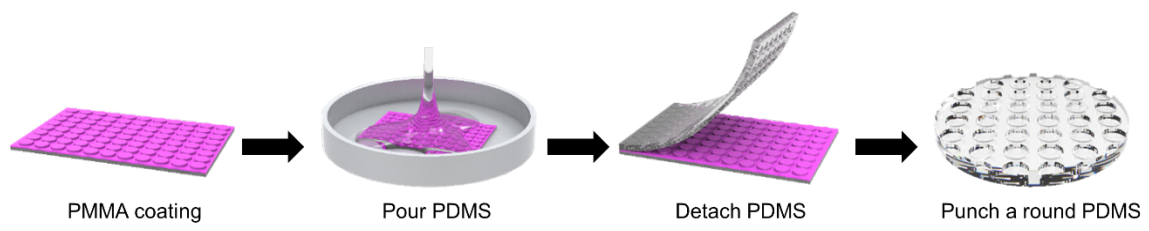
E-mail: minhopark@ssu.ac.kr\_(M.-H. Park), bonghoonkim@dgist.ac.kr (B. H. Kim)



**Fig. S1.** Contact area ratio of (a) hole (b) cylinder and (c) line shapes. (a)  $[(100 \mu\text{m})^2 - (\pi R)^2] / (100 \mu\text{m})^2$  (b)  $\pi R^2 / (100 \mu\text{m})^2$  (c)  $(100 \mu\text{m} \cdot a) / (100 \mu\text{m})^2$ .



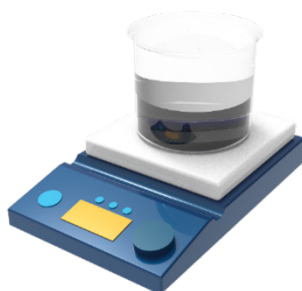
**Fig. S2.** Fabrication of Si mold by photolithography process



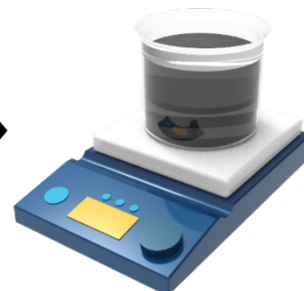
**Fig. S3.** Fabrication of manufacturing BDAPs



Dispersion of MWCNT/THF(BHT 750 ppm)



Swelling of PDMS



Evaporation of THF

**Fig. S4.** Fabrication of manufacturing c-BDAP.