

## Omiphobic Micropatterns Containing Overhanging Structures Created by Unconventional Photolithography

\_\_\_\_\_, <sup>1</sup>, \*  
KAIST; <sup>1</sup>University of Pennsylvania  
(kim.sh@kaist.ac.kr\*)

Photolithography uses local crosslinking or degradation of photoresist by selective exposure of ultraviolet (UV) light. This enables the preparation of micropatterns useful for a wide range of applications including semi-conductor and LCD processing. However, photolithography only can produce two dimensional structures with vertical walls. To overcome the limitation, we have developed a modified photolithography technique which uses oxygen-inhibition phenomenon during photopolymerization. Here, we prepare microarrays of hammer-like structures which can facilitate trapping of air pockets, thereby providing omiphobic property. Head and handle parts of the structures are sequentially prepared by step-by-step applications of the unconventional photolithography using a single photomask; diameter of the handle is set to be smaller than that of head by inhibiting photopolymerization by oxygen diffusion in a controlled fashion. The array of hammer-like structures exhibits hydrophobic and oleophobic properties at the same time owing to sharp corner of the head.