

Fabrication of Silicon Nanowire Pattern Using Nanoimprint Lithography for the Application to Biosensor

최동식¹, 이진호², 강다연², 최정우^{1,2}, 오병근^{1,2,*}
¹서강대학교 바이오융합기술학과;
²서강대학교 화공생명공학과
(bkoh@sogang.ac.kr*)

Nanoimprint lithography (NIL) is one of the most promising technologies to fabricate nanopattern on solid substrate because of its several advantages such as resolution, reliability, and process speed, compared to conventional lithography. By using NIL, nano-scale to micro-scale nanostructures was fabricated on large scale silicon on insulator plate at mild condition. The fabricated nanowire patterns were characterized by FE-SEM. An antibody was immobilized on the fabricated nanowire pattern, which has affinity for target molecule of interest. And then target molecules were detected by analyzing the change of nanowire conductance using semiconductor parameter analyzer. In this study, the proposed NIL technique can be useful as a method for the fabrication of nanoscale biosensor.

Acknowledgments: This research was supported by Nuclear R&D program through the Korea Science and Engineering Foundation (KOSEF) funded by the Ministry of Education, Science and Technology (MEST) of Korea (Grant No. M20706010003-08M0601-00310)