NW-P009

Fabrication of Ordered Nanoporous Alumina Membrane by PDMS Pre-Patterning

김 별, 이진석*

숙명여자대학교

Nanoporous anodic aluminum oxide (AAO), a self-ordered hexagonal array has various applications for nanofabrication such as nanotemplate, and nanostructure. In order to obtain highly-ordered porous alumina membranes, Masuda et al. proposed a two-step anodization process however this process is confined to small domain size and long hours. Recently, alternative methods overcoming limitations of two-step process were used to make prepatterned Al surface. In this work, we confirmed that there is a specific tendency used a PDMS stamp to obtain a pre-patterned Al surface. Using the nanoindentaions of a PDMS stamp as chemical carrier for wet etching, we can easily get ordered nanoporous template without two-step process. This chemical etching method using a PDMS stamp is very simple, fast and inexpensive. We use two types of PDMS stamps that have different intervals (800nm, 1200nm) and change some parameters have influenced the patterning of being anodized, applied voltage, soaking and stamping time. Through these factors, we demonstrated the patterning effect of large scale PDMS stamp.

Keywords: anodic aluminum oxide, AAO, patterning

NW-P010

Fabrication of Poly(3,4-ethylenedioxythiopene) Patterns using Vapor Phase Polymerization

조보람, 성명모

한양대학교 화학과

We fabricate poly(3,4-ethylenedioxythiopene patterns using liquid-bridge-mediated nanotransfer (LB-nTM) printing via vapor phase polymerization (VPP). LB-nTM printing method can simultaneously enable the synthesis, alignment and patterning of the nanowires from molecular ink solutions. Two- or three-dimensional complex structures of VPP-PEDOT were directly fabricated over a large area using many types of molecular inks. VPP method is a versatile technique that can be used to obtain highly conducting coatings of conjugated polymer on both conducting and non-conducting substrates. The PEDOT patterns has analyzed crystallinity from X-ray diffraction pattern and select-area diffraction patterns. In addition, the PEDOT pattern has high conductivity compared other conducting polymers.

Keywords: poly(3,4-ethylenedioxythiophene), patterning, direct printing, vapor phase polymerization, liquid-bridge-mediated nanotransfer molding