

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Fabrication of Conducting Polymer Nanowires using Block-copolymer Nano-Porous Templates¹ JEONG IN LEE, PHILLIP ANTHONY, JIN KON KIM, Pohang Univ of Science and Technology, JAE WOONG RYU, Korea Institute of Science and Technology — Nanoporous templates have been used for the fabrication of nanostructured materials that have their potential applications in electronics, optics, magnetism, and energy storage. Here, we showed that nanoporous templates based on polystyrene-block- poly(methyl methacrylate) (PS-b-PMMA) were used for the preparation of high density nanowire arrays of polypyrrole (PPy), poly(3,4-ethlenedioxythiophene) (PEDOT), poly(3-hexylthiophene) (P3HT). We found that these conducting polymer nanowires showed much higher conductivity compared with conducting polymer films. This is because of the chain orientation of conducting polymer nanowires during the growing process inside the confined nanohole. The chain orientation of nanowires along the nanoporous template direction was characterized by HR-TEM, XRD and GI-WAXS.

¹This work was supported by Creative Research Initiative Program supported by KOSEF.

Jin Kon Kim
Pohang Univ of Science and Technology

Date submitted: 20 Nov 2006

Electronic form version 1.4