I-3

## Fabrication of Conducting Polymer Nano-Films and its Organic Display Applications

김진열†

국민대학교 신소재공학부

(jinyeol@kookmin.ac.kr†)

Thin polymer films have been used as a flexible substrate for displays bacause polymer films are superior to glass panels in lightness and durability. The plastic substrates used for the FPDs, which are virtually unbrakably and can be bent and twisted, have only one sixth the weight of a glass substrate, and are thinner and hence do not show the shadow image usually seen in reflective displays with a glass substrate. Recently, optoelectronic devices often require polymeric transparent electrodes to improve the performance of the device and for the creation of devices with only polymer components.

In this reason, we investigated anew that the nano-films of conducting polymer films having highly conductivity up to 100 ohm/squre and transparence up to 85% with electron mobility prepared by using depositing polymerization in gas-phase. Here, the vapor-phase polymerization technique is one of the nano-fabrication techniques using a bottom-up processing method which can utilize well the organic arrangement of macro-molecules to produce the ordered aggregates as the scale of nano-layer or the preparation of thin films as self-assembled molecules. This new process can also easily prepare the micropatterning and etching of conducting polymer layers by selective growth of polymer films. These organic conducting polymers can be used as the conductive layer in flat panel display. These properties are sufficient for the thin film to be applied to organic opto-electronic devices and to realize all-polymer devices.

**Keywords:** nanofilm. conducting polymer, CVD, Self-assembly

I-4

## Template-Assisted Synthesis and Magnetism of Multilayered Nanowires

Young Keun Kim†

Department of Materials Science and Engineering, Korea University

(ykim97@korea.ac.kr†)

Nanowires have selected as one of the top five areas in physics [1] because their physical properties can be easily tailored by proper chemistry. They have been the focus of research for a variety of one-dimensional nanosystems, and can offer exciting applications in nanotechnology, ranging from nanoeletronic devices to cell-separation and magnetic labeling in biomedicine. Various fabrication methods were suggested to synthesize them from metallic, semiconducting, to dielectric materials, providing novel magnetic, electrical, and optical functionalities. A template-mediated electrochemical synthesis is attractive for investigating the physics and potential practical applications in nanoscale magnetic devices, due to its readiness, convenience, and cost merit. In particular, nanowires with multilayered arrangements incorporating different material components show multiple functionalities and enhanced properties in comparison to those of their single-component counterparts.... The synthesis, microstructure, and properties of multilayered nanowires such as Co/Cu [2] and Fe/Au [3] systems are discussed.

**References**

[1] J. Giles, Nature 441. 265 (2006).

[2] J. U. Cho, J. H. Min, S. P. Ko, J. Y. Soh, Y. K. Kim, J.-H. Wu and S. H. Choi, J. Appl. Phys. 99, 08C909 (2006); Virtual Journal of Nanoscale Science & Technology 13, May 15 (2006).

[3] J. H. Lee, J. H. Wu, H. L. Liu, J. U. Cho, M. K. Cho, B. H. An, J. H. Min, S. J. Noh, and Y. K. Kim, Angew. Chem. Int. Edit., in press.

**Keywords:** Nanowire