Symp C1

Electrochemical Preparation and Characterization of Conduction Polymer Nanostructures

Jin-Yong Lee, Joo-Yul Lee, Shin-Jung Choi, Dong Hun Han,
Hyo Joong Lee, Jae-Woo Kim, and Su-Moon Park
Department of Chemistry and Center for Integrated Molecular Systems
Pohang University of Science and Technology, Pohang 790-784, Korea

Nanostructures of conducting polymers have been prepared and characterized electrochemically at gold electrodes modified with appropriate template molecules. The template modified electrodes, which were prepared by dipping gold electrodes in solutions containing an appropriate ratio of template molecules including thiolated cyclodextrin and alkylthiol spacer molecules, were shown to not only have applications such as molecular size selective electrochemical sensors but also offer reaction sites for the preparation of nanosized structures of conducting polymers. Nanostructures such as nanosized dots and wires of conducting polypyrrole and polyaniline, have been grown electrochemically using these molecular templates. Electrochemical characterization of nanostructured materials thus prepared have been carried out by a variety of electrochemical and surface analysis methods. Also, the nanostructures have been characterized by conducting probe atomic force microscopy. In this presentation, we will describe the results obtained from these studies.