Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Highly branched RuO2 Nanorods on Electrospun TiO2 Nanofibers toward Electrochemical Catalysts YUKYUNG CHO, SU-JIN KIM, EWHA Woman's Univ, NAM-SUK LEE, Pohang University of Science and Technology, MYUNG HWA KIM, YOUNGMI LEE, EWHA Woman's Univ — We report a facile growth route to synthesize hierarchically grown single crystalline metallic RuO_2 nanorods on electrospun TiO_2 nanofibers via a combination of a simple vapour phase transport process with an electrospinning process. This synthetic strategy could be very useful to design a variety of highly branched network architectures of the functional hetero-nanostructures for electrochemical applications. Particularly, Ruthenium oxide (RuO_2) 1-dimensional nanostructures can be used as the effective catalysts or electrochemical electrode materials. Thus, we first synthesize TiO_2 nanofibers from mixture of titanium isopropoxide precursor and polymer and then ruthenium hydroxide precursor on TiO_2 nanofibers are transformed into RuO2 nanorods by thermal treatment at 250^oC in air. The crystalline structures of products are confirmed using scanning electron microscopy (FE-SEM), X-ray diffraction (XRD) spectrum, Raman spectroscopy, and high resolution electron microscopy (HRTEM). The fundamental electrochemical performances are examined using cyclic voltammetry (CV).

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Date submitted: 15 Nov 2013 Electronic form version 1.4