

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Quick synthesis of nanoscale tungsten oxide particles and rods
XINPENG WANG, NOEL UPIA, BOQIAN YANG, HONGXIN ZHANG, PETER FENG, Univ. of Puerto Rico, PLASMA PROCESSING LAB TEAM — Novel Hot Filament Chemical Vapor Deposition (HFCVD) set has been installed and used for quick synthesis of nanoscale tungsten oxide particles and nanorod over large area. The present work addresses two issues: to simplify the deposition processing and to quickly deposit well-aligned nanoscale tungsten oxide rods over large area. An effect of temperature on the synthesis of the nanoscale tungsten oxide rods and particles is studied. Raman spectroscopy (RS), scanning electron microscopy (SEM), energy dispersive X-Ray microanalysis (EDS), X-ray diffraction (XRD), and X ray photoelectron spectroscopy (XPS) have been used to characterize the samples. Experimental results reveal that low-temperature HFCVD yields nanoscale tungsten oxide particles, whereas high temperature of HFCVD results in large crystalline particles with size up to 3 μ m. Only in the case of temperature around 2200°C, large area, well-aligned nanoscale tungsten oxide rods can be obtained.

Xinpeng Wang
Univ. of Puerto Rico

Date submitted: 17 Nov 2006

Electronic form version 1.4