# Preparation and Characterization of some multi-walled carbon nanotubes-based nanocomposites

모하메드엠라바니, 고창현[1], 오원태*
동의대학교; [1]Green House Gas Research Center, Korea Institute of Energy Research
(wtoh2005@deu.ac.kr*)

Nanocomposites of gold and multi-walled carbon nanotubes (MWNTs) were prepared with gold nanoparticles and MWNTs stabilized by 4-(dimethylamino)pyridine (DMAP) and dispersion agents, respectively. In addition some nanocomposites of charged cadmium telluride (CdTe) and cadmium selenide (CdSe) nanoaprticles with carboxylated multi-walled carbon nanotubes (c-MWNTs) were prepared by the similar procedure. They all were studied in detail with UV/vis spectroscopy, transmission electron microscopy (TEM) and X-ray photoelectron spectroscopy (XPS). UV/vis spectra of Au-MWNT nanocomposites showed the characteristic surface plasmon bands at ~ 525 nm. There was only slight change on the band shape with change of dispersion agent for MWNTs. MWNT-CdX (X=Te, and Se) composites showed absorption peak near ~250 nm which indicates a significant modification of the energy states of the c-MWNTs caused by the binding between nanoparticles and c-MWNTs. The distribution and the binding of nanoparticles on the sidewalls of MWNTs were deliberately investigated through TEM images and XPS analysis.