RAMAN SPECTROSCOPY STUDY OF CARBON NANOTUBES PREPARED ON NANO-STRUCTURED TITANIUM DIOXIDE THIN FILMS

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ABSTRACT

RAMAN SPECTROSCOPY STUDY OF CARBON NANOTUBES PREPARED ON NANO-STRUCTURED TITANIUM DIOXIDE THIN FILMS

Carbon nanotubes were prepared by thermal chemical vapor deposition (TCVD) method using TiO_2 as a catalyst and palm oil as a precursor. TiO_2 solution was prepared by using sol-gel method and then spin coating technique was used to deposit TiO_2 solution onto Silicon substrate. The synthesis temperatures were varied with various temperatures; (600-850^{0}C). The carbon nanotubes sample was characterized by using Raman Spectroscopy and Field Emission Scanning Electron Microscope (FESEM). The result show that the CNTs were grows at 750^{0}C in bamboo like CNTs structure. Minimal amount of CNTs were detected at 800^{0}C sample. There are no CNTs were noticed at temperature lower than 750^{0}C. At higher temperature, higher than 800^{0}C a-c carbon were found. The Raman shift of D and G band are between 1325cm^{-1} and 1630cm^{-1}. Meanwhile the I_D/I_G at 750^{0}C is 1.13 and 800^{0}C is 1.06. The intensity ratio was increases when temperature decreasing. As a conclusion, CNTs grow at temperature of 750^{0}C and 800^{0}C.

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