Studies on carbon nanotubes/silver clusters composites

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Since their discovery in 1991 by Iijima [1], carbon nanotubes (CNTs) have attracted great interest in most fields of science and engineering due to their unique physical and chemical properties. These properties allow them to be applied for a wide range of applications [2, 3]. The major areas of CNTs research are the polymer composites [4] and biomedical materials and devices including biosensors, drug and vaccine delivery vehicles [5].

Carbon nanotubes/silver clusters composites were produced by functionalization of both single walled and multi walled CNTs (SWCNTs and MWCNTs) by Ag nanoparticles, achieved *via* anchoring of the polymer to the surface of CNTs and simultaneous reduction of Ag^+ ions under the γ-irradiation. Two different synthesis procedures were employed. The presence of Ag on the nanotubes was confirmed using energy dispersive X-ray spectroscopy. CNTs/silver clusters composites were visualized using microscopic techniques STM and TEM. The particle size distribution measurements were taken. Ag nanoparticles were formed and successfully decorated CNTs. Making a CNT type of composites is of interest for their further application in different fields of biology and technology.

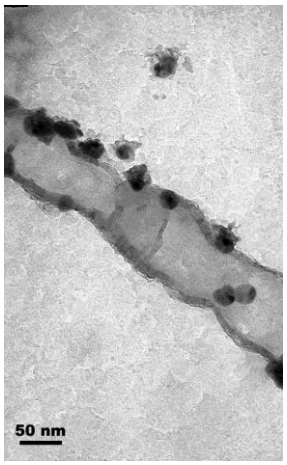

Figure 1. TEM image of as-prepared Ag/PVA/SWCNTs.

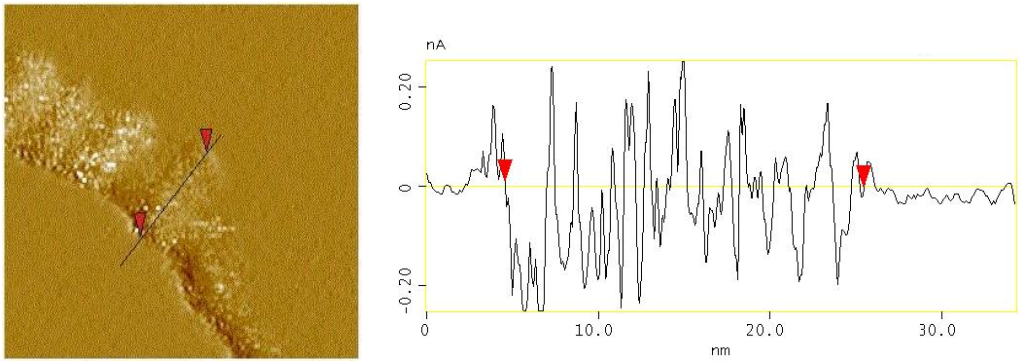

Figure 2. STM image (69nm x 69nm) of Ag/PVA/SWCNTs

References

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