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Ion irradiation effects in multiwalled carbon nanotubes structure

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Samples of multi-walled carbon nanotubes (MWNTs) were irradiated with He ions. Scanning electron microscopy (SEM) images of the pristine and irradiatedsamples were obtained. SEM pictures showed that in the irradiated sample, the tubes are in general shorter unlike in the pristine sample. We also find from these images that average outer tube diameters change as a result of ion irradiation. The samples were also characterized using Raman spectrometry. Effects of ion irradiation were investigated through the ID/IG ratio. Modifications of the disorder mode (D-band) and the tangential mode (G-band) under different irradiation fluences were studied in detail. Asfluence increases, the MWCNTs first show disorder due to the produced defects, then healing under somewhat higher fluencies and again amorphization under still higher fluence of ion irradiation.

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