

Abstract Submitted
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Monitoring metal catalyst content of carbon nanotubes during purification using X-ray fluorescence¹ BRANDON CAVNESS, JOSHUA HEIMBECKER, Angelo State University, JOE VELASQUEZ, Angelo State University / Los Alamos National Laboratory, SCOTT WILLIAMS, Angelo State University — There have been many studies that suggest that catalyst metals in carbon nanotubes (CNTs) may pose a health threat. As there are several potential applications of CNTs in medicine, it is important to be able to quantitatively determine the amount of catalyst contained in a CNT sample. The relative catalyst content of carbon nanotube samples synthesized via arc-discharge has been determined at various stages of the purification process using X-ray fluorescence (XRF) analysis. Purification was achieved by immersing samples in heated nitric acid. The intensities of the nickel $K\alpha$ X-rays were studied to determine the relative catalyst content in the samples. Scanning electron microscopy (SEM) images of purified nanotubes have been compared to the images of a sample that has been irradiated by 0–15keV bremsstrahlung in order to determine if the XRF analysis of the nanotubes is in any way destructive. No obvious structural defects were observed as the result of irradiation.

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