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Synchrotron based measurements of the photoelectron spectrum of CdTe nanoparticles[1] AALE NAQVI, University of Texas at Arlington, S. HULBERT, Brookhaven National Laboratory, R. SUNDARAMOORTHY, University of Texas at Arlington, W. CHEN, A.H. WEISS, The University of Texas at Arlington
— Nanoparticle solutions of CdTe of size 540, 585, 656nm, and Au were deposited on silicon substrates of approximately 1cm x 1 cm after etching the substrate with HF. The samples were exposed to soft x-rays of varying energy under ultra high vacuum, $\sim 10^{-10}$ torr using beam line U16B at the National Synchrotron Light Source (NSLS) at Brookhaven National Lab. The mechanism of the NSLS storage rings—VUV and X-ray—and the design of the beam are described. We performed Auger electron spectroscopy measurements on the samples and identified the peaks through spectroscopic analysis and monitored the damage of the nanoparticles by observing their fluorescence by gradually increasing the photon energy. The nanoparticles were observed to exhibit a time dependent damage response. Future studies aimed at exploring the potential use of nanoparticles as radiation sensitizing agents for cancer treatment are proposed.

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