

Abstract Submitted  
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**Zinc Oxide Coated Carbon Nanotubes for Energy Harvesting Applications**<sup>1</sup> AUSTIN MOHNEY, Lock Haven University, DAVID STOLLBERG, Georgia Institute of Technology — Small scale electrical devices depend on bulky batteries that require recharging or replacement. In biomedical monitoring, where sensors could be implanted inside the body, maintenance of batteries presents a problem. It would be beneficial if small scale devices could generate their own power and alleviate their dependence on batteries. Piezoelectric nanogenerators have proven themselves as a viable means for ambient energy harvesting. Piezoelectric materials, such as zinc oxide (ZnO), produce a voltage difference when subjected to mechanical strain. Manipulation of this voltage can allow for the storage of energy to power small scale devices. The objective of this research is to manufacture a piezo-generator that can transduce mechanical vibrations into electrical energy. Carbon nanotubes, selected for their strong, flexible, and conductive properties, are used as a structural backbone for a ZnO piezoelectric coating and a Ag electrode coating. A Schottky diode interface is used to rectify the current output of the device. The devices yielded an average current output of .79 microAmps. SEM imaging was used to characterize the fabrication process. A Keithley 2700 digital multimeter was used to characterize the current output of the devices.

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