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Analysis of Silicon Carbide Coated Carbon Nanotubes ADAM KONNEKER, JUN SONG, RICKY WYMAN, RICHARD VANFLEET, DAVID ALLRED, ROBERT DAVIS, Brigham Young University — The purpose of this research is to explore the use of silicon carbide coated carbon nanotubes in microelectromechanical systems or MEMS. In our research group at Brigham Young University, we are developing a method of MEMS fabrication through the use of carbon nanotube (abbreviated CNT) "scaffolds." Traditional MEMS fabrication techniques are use chemical etching to create three dimensional structures. Our group is seeking to overcome some of the shortcomings of this method by using patterned vertically aligned CNT's filled with bulk materials to create new MEMS devices. This technique allows the creation of MEMS devices with geometries that cannot be created using standard methods. This research focuses on the use of chemical vapor deposition to fill the CNT arrays with silicon carbide, which is a very durable and robust material that could have a wide range of applications in MEMS. We will report on preliminary results of silicon carbide production as determined by electron microscopy and X-ray spectroscopy.

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