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Digital
Pulse Force Microscopy Study Of Suspended SiC Nanowires ABDULLAH ALKHATEEB, DEVANANDA GANGADEAN, DAQING ZHANG, DAVID MCILROY, Department of Physics, University of Idaho, D. ERIC ASTON, Department of Chemical Engineering, University of Idaho — Silicon carbide nanowires could be potentially useful in designing nanomechanical systems which lead to the interest in understanding their mechanical properties. In this report the technique of digital pulse force microscopy (DPFM) has been used to analyze the mechanical properties of suspended SiC nanowires. The SiC nanowires were suspended on a silicon grating with trenches of 1.5 micron width and 1 micron height. Deflection measurements and hence calibrated force-distance curves along the length of the nanowire were obtained. Moreover, a deflection model for beams is discussed to understand the behavior of the nanowire during the deflection measurement and then to extract the elastic modulus for the nanowire.

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