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Stacking faults in SiC nanowires KENDRA L. WALLIS, MIRZA HASAN, MONIKA WIELIGOR, WALDEK ZERDA, Texas Christian University — Nanostructured silicon carbide exhibits a wide-range of enhanced properties, including mechanical, electrical, thermal, and optical, over silicon carbide of larger grain size. Thus nanostructured silicon carbide offers the prospect of being a very useful material for many applications. We have produced pure SiC nanowires by silicon vaporization reaction with carbon multiwall nanotubes. These nanowires range in diameter from 20 nm to almost 600 nm and reach lengths up to 30 μm. We will show SEM and HRTEM images of the produced nanowires, along with x-ray diffractograms, Raman spectra, and FTIR spectra, all of which have been analyzed to study the structure and growth of pure SiC nanowires. We have found some wires with no stacking faults and some wires with stacking faults. The stacking faults and interesting information about them will be discussed. We show that population of structural defects depends on quality of carbon nanotubes.

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