

Synthesis of SiC nanowires by direct microwave irradiation

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We report a method for the synthesis of SiC nanowire by direct microwave irradiation on the Si substrate under H₂ and CO atmosphere at 1 atm. 3C-SiC structures were grown on the Si wafer through this synthetic method. Transmission electron microscopy shows that the nanowires are around 20 nm in diameter. High resolution transmission electron microscopy reveals that the nanowires are crystalline 3C-SiC nanowire. Raman spectra show the typical features of nano-sized SiC. This method requires a short reaction time (2 min). The results of this research allow us to propose the growth mechanism of SiC nanowires on the Si substrate by direct microwave irradiation.