

SiC 나노와이어 직접합성 및 원자적 구조 분석

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Crystal structure of β -SiC nanowires was investigated using Raman spectroscopy, FT-IR, XRD, transmission electron microscopy and selected area electron diffraction. Cubic β -SiC nanowires were synthesized by heating NiO catalyzed Si substrates with WO₃ and graphite mixed powders in the growth temperature of 1000 – 1100 °C. HRTEM image showed atomic arrangements of the grown SiC nanowires with a main growth direction of [111]. Raman spectra showed two characteristic peaks at 796 cm⁻¹ and 968 cm⁻¹, which are corresponding to transversal optic mode and longitudinal optic mode of β -SiC, respectively. Also, FT-IR absorption spectroscopy showed a SiC characteristic absorption band at ~ 792 cm⁻¹.