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Growth of carbon nanowalls using inductively coupled plasma-enhanced chemical vapor deposition¹ MINEO HIRAMATSU, YUKI NIHASHI, TOMOHIRO HORAGUCHI, Meijo University, MASARU HORI, Nagoya University — Carbon nanowalls (CNWs), two-dimensional carbon nanostructures, were synthesized by inductively coupled plasma chemical vapor deposition system employing methane and argon mixtures. CNWs with relatively smooth surface were fabricated at a high growth rate of approximately 50 nm/min. Furthermore, area-selective growth of CNWs were demonstrated using patterned Ti film on the Si substrate. CNW growth was enhanced on the Ti thin layer, compared with the CNWs grown on the Si surface. The height of the CNWs grown on the Ti film was 1.6 times greater than that on the Si surface. As an application of CNWs, field electron emission characteristics were investigated for the CNW films. The field electron emission characteristics of CNWs were improved as a result of N₂ plasma treatment.

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