Plasma Power Effect on Carbon Nanotube Growth in Tubular Inductively Coupled Plasma Reactor

이재원, 채희엽*
성균관대학교
(hchae@skku.edu*)

Carbon nanotube is a promising material for many applications due to its excellent mechanical, electrical and thermal properties. In terms of producing CNTs, plasma-enhanced chemical vapor deposition (PECVD) has merits on controlling the location, size, shape and alignment.
Plasma power effect to carbon nanotube growth has been focused on in this work. Multi-walled carbon nanotube synthesis and characterization was performed by using inductively coupled plasma (ICP) tubular reactor. CH4 was used as carbon source, with Ar as carrier gas. Iron acetate was used for the catalyst and Al thin layer played a role of buffer between catalyst and substrate. The effect of Al buffer layer is also analyzed. Varying the plasma power (10W~200W) showed the plasma power effect on MWNT formation. Grown CNTs were analyzed by FE-SEM, EDX and FT-Raman microscopy.