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Surface Modification of Carbon Fiber with High Frequency Single and Dual RF Capacitive Coupled Plasma[1] DEMIRAL AKBAR, Plasma Physics, Middle East Technical University, UMMUGUL GUNGUR, SINAN BILIKMEN, Middle East Technical University — In this study we used high frequency Single and Dual RF-PECVD discharge to modify the surface of the carbon fiber under different RF powers and exposure time using pure nitrogen gas. The surface characterization of the carbon fiber was carried out by means of Raman Spectroscopy. It was found that, in general, the intensity of the Raman spectra decreases as the RF power increases, but remain approximately constant with treatment time in single RF case. However, the intensity variations in dual RF plasma discharge are more complicated. In addition, it was found that the surface crystallization size increased when the time of the applied dual frequency (HF=40.68 MHz, LF=2.1 MHz) RF plasma discharge increased, which is indication of the higher ordering of the graphitic structures.

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