

## **SYNTHESIS OF CARBON NANOSHEETS USING MICROWAVE PLASMA ENHANCED CHEMICAL VAPOR DEPOSITION SYSTEM**

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### **ABSTRACT**

Petal-like graphite nano sheets were synthesized by acetylene gas in a hydrogen plasma environment using Microwave Plasma Enhanced Chemical Vapor Deposition (MPECVD) equipment. The "Petal" - like structure is arranged vertically with sharp graphite tips and horns, and the thin edges potentially have potential as field emission devices. As the reaction time increased and the temperature decreased, the size of "petal" was observed to increase. Despite the high energy of the plasma, the formation of carbon nanotubes could not be confirmed in the upper experiments, but the remarkable growth of carbon nanotubes was confirmed after controlling the reaction temperature. In order to investigate the optimal conditions for growth of carbon nano sheets, the reaction times were changed at various temperatures under hydrogen atmosphere.

**Keywords:** Carbon nano sheets, MPECVD, Ni thin films, growth rate.