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# Carbon Nanofilms on Diamond for All-Carbon Chemical Sensors

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**Abstract :** A study on chemical sensing properties of carbon nanofilms on diamond for developing all-carbon chemical sensors is presented. The films were obtained by high temperature graphitization of diamond followed by successive plasma etchings. Characterization of the films was done by Raman spectroscopy, atomic force microscopy, and electrical measurements. Fast and selective response to common organic vapors as seen as sensitivity of electrical conductance was observed. The phenomenological description of the chemical sensitivity is proposed as a function of the surface and bulk material properties of the films.

**Keywords :** chemical sensor, carbon nanofilm, graphitization of diamond, plasma etching, Raman spectroscopy, atomic force microscopy
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