


Feed gas dependence of the surface nanophase on HFCVD grown diamond films studied by surface enhanced Raman spectroscopy

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Abstract

A series of diamond films grown by hot filament assisted chemical vapor deposition under different feed gas composition have been studied using surface enhanced Raman spectroscopy (SERS). The enhancement of Raman signal was achieved by the deposition of thin silver layer onto the film surface. All the samples show, upon silver deposition, a gradual asymmetry of the 1332 cm^{-1} Raman peak and enhanced intensity of both the 1332 and 1240 cm^{-1} peaks. An idea about the surface nanophase content in the film is made from the ratio of the enhanced intensities of the two peaks. Its dependence on the feed gas composition has been studied and the different possibilities leading to such dependence have been explored.

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