

Columnar Diamond-CVD Growth Structure on irregular Surface Substrates

V.J. Trava-Airoldi, E.J. Corat, A.F.V. Peña, N.F. Leite (INPE), V. Baranauskas (FEE/UNICAMP), M.C. Salvadori (USP/SP)

Columnar grain structure is always observed in CVD-diamond growth, and is an important parameter to identify the morphology of thin and thick films. Structure defects, aspects of onset nucleation, and film growth mechanisms can also be related with columnar growth. In this work we focus sed our attention on the columnar stucture of CVD-diamond grown on irregular surfaces. We observed that there is a relationship among curvature radius of the substrate surface, the spread of the column volume and the growth rate of the diamond film. Growth rates on spherical surfaces of around 0,5 mm curvature radius have been observed to be up to three times bigger than the growth rates on planar surfaces. Characterization with Scanning Electron Microscopy (SEM), and raman Scattering Spectroscopy (RSS) have been performed.

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