

Strain in treated and untreated single crystal CVD diamond

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Single crystal diamond grown by the CVD technique has been demonstrated to possess outstanding properties compared to single crystal diamond from other sources. Strain is a critical property which influences the performance of diamond in a number of applications. In this paper, we will discuss properties of single crystal CVD diamond which is as grown and which has been high pressure-high temperature (HPHT) annealed. The main emphasis of the talk will be focused on the impact which the HPHT anneal has on the strain in the diamond. Strain will be evaluated using cross polarized microscopy, and will be correlated to other material properties.

Key words: single crystal CVD diamond, strain, annealing, optical properties