

**THE PECULIARITIES OF CVD DIAMOND COATINGS SYNTHESIS  
IN ABNORMAL GLOW DISCHARGE PLASMA USING  
REPETITIVELY-PULSED MODE**

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We report about the features of polycrystalline diamond coatings CVD synthesis in repetitively-pulsed plasma of abnormal glow discharge. The discharge burning time was varied from a continuous one to 1 ms with proportional pauses. The dependences of growth rate and the phase composition of deposited diamond films on the durations of the discharge burning and pauses are presented. The mutual influence of two plasma filaments on each other and onto the substrate has unequivocally established. Raman spectroscopy, X-ray diffractometry and SEM were used for identification of phase composition and microstructure of deposited films. New data about the features of a pulsed discharge ignition and its burning at high pressures ( $> 100$  Torr) is also presented.

**Keywords:** *CVD diamond coatings, Glow discharge plasma, Pulsed plasma.*