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Diamond -like carbon (DLC) thin films: Synthesis and investigation

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Abstract content
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Diamond-like carbon (DLC) thin films are becoming increasingly important in many industrial applications, including wear-resistant coatings for hard-disk drives and optical components, as well as in semi-conductor devices. In this work we seek to establish the correlation between the structural and electronic properties of DLC based on the zone structure model through variation of the sp² composition. Thin films of DLC were grown by RF Sputtering methods in argon atmosphere at different power starting from 100 W to 200 W and DC sputtering power (100 W to 600 W) based on the structure zone model. The physical, electronic and electrical properties of diamond like carbon thin films were investigated using the Raman spectroscopy at laser excitation energy 488nm and voltage (V) - current (I) relationships. Furthermore X-ray Reflectometry and grazing incidence X-ray diffraction have been used to determine the density, growth rate and structure of thin DLC films.

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PhD

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