

Master/Bachelor Thesis – Institute of Micro and Nanomaterials - Diamond Group

Nanocrystalline Diamond (NCD) is used as a coating material to improve the tribology, durability and stiffness of machine parts, drilling tools etc. Also for Micro-electromechanical systems (MEMS), Diamond is a promising candidate. To optimize the performance of this applications, a good control over the residual stresses in the films is needed. The residual stresses can be influenced by different growth parameters.

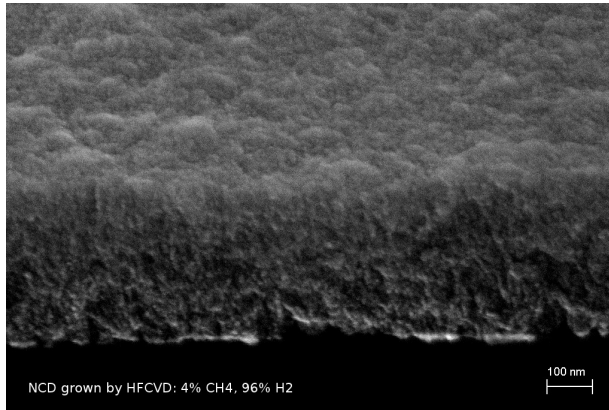


Fig. 1) Nanocrystalline Diamond Film

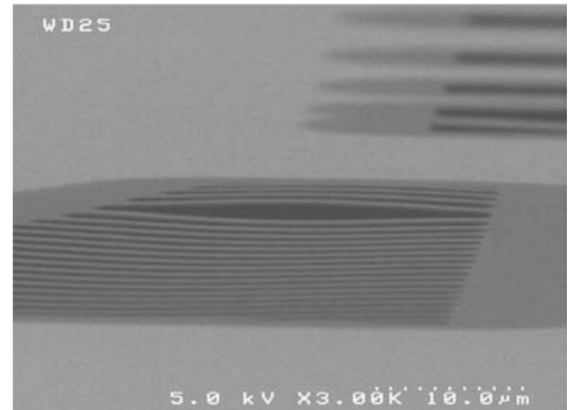


Fig. 2) 'Euler-Bars' buckling because of residual compressive stress [1]

In this thesis, a method will be established/optimized to build mechanical structures on NCD films for measuring the mechanical stresses in the films. Also simulations could be done to compare the analytical models and the measurement results with a numerical (FEM) approach.

If you are interested and/or have further questions, dont hesitate to contact me

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