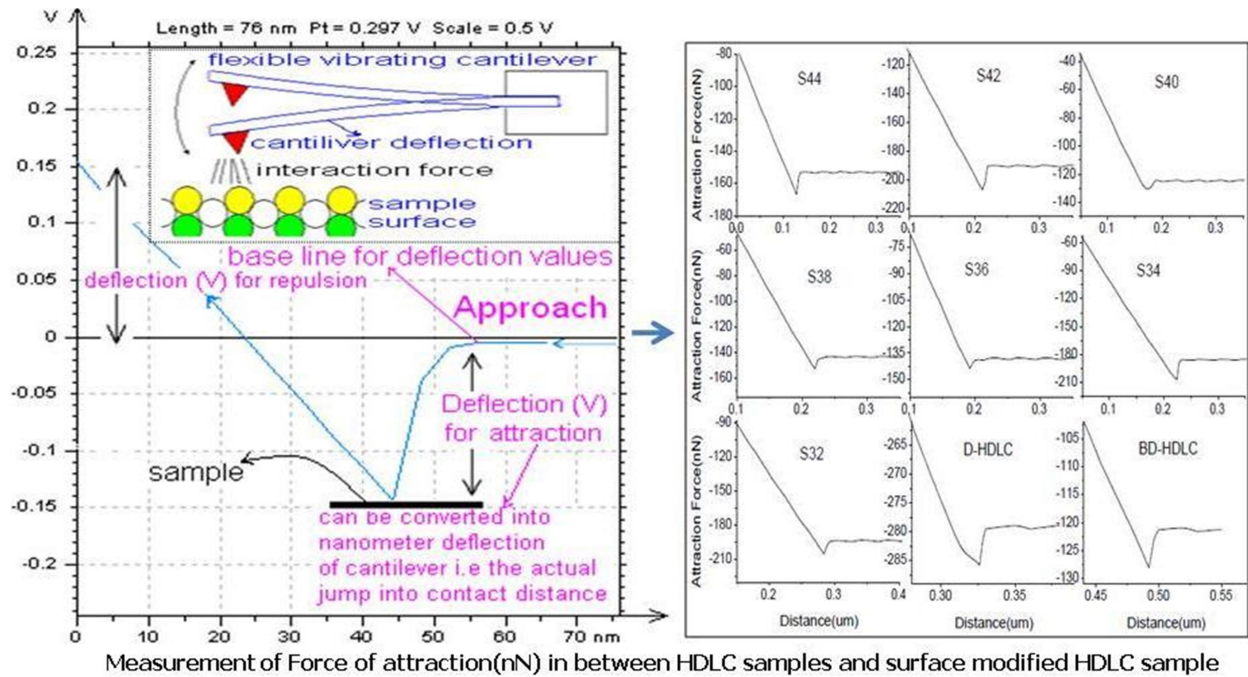


Surface morphological Characterization of Hydrogenated Diamond like Carbon and surface modified Hydrogenated Diamond like Carbon by Scanning Probe Microscope

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Abstract

Seven sample of Hydrogenated Diamond-like Carbon (HDLC) films onto Si (100) substrate at room temperature using biased enhanced nucleation (BEN) technique in the reactive gas-plasma process (RGPP) under varying ratio of flow rates of H₂ and CH₄. Thus the as-prepared HDLC samples are named as S44, S42, S40, S38, S36, S34, and S32. Atomic Force Microscopy (AFM) has the unique capability of probing the nanoscale surface morphological Properties of Carbon base materials and biological systems. In this paper the Force of attraction in nano Newton (nN) unit and surface roughness in nm unit of the HDLCs and surface modified HDLCs sample by Bovine Serum Albumin (BSA) was measured quantitatively by AFM. It is seen that a clear

correlation with force of attraction with Hydrogen Content in the surface, roughness of the surface and presence of Bimolecules in the surface.

Key word: Hydrogenated Diamond, AFM, Force of attraction, Surface roughness