

Note on Nanomaterials in MEMS/NEMS

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INTRODUCTION

Diamond materials provide nice potential for electronic and medical specialty application. Properties like terribly high stiffness, thermal physical phenomenon, optical transparency vary, chemical stability and erosion resistance for the diamond primarily based materials extend their relevance for many aspects of science and technology. Nanostructures of diamond materials have extraordinary multifunctional properties like high thermal physical phenomenon and a Young's modulus worth getting ready to the one for single crystal diamond. Controlled nucleation and growth of nanocrystalline diamond together with their relevance for MEMS and NEMS structures area unit helpful of future generation sensing element platforms. Researchers round the world are swing their efforts to realize high preciseness within the direction of fabricating the devices supported diamond materials. Nanomanufacturing of such devices needs the controlled style of nanoscale diamond structures.

The actual state of the applied science has reached mature advancements for nanomaterials process together with functionalizations, nanocomposites, interbreeding of materials, nanoparticles, nanowires, nanotubes, nanofibers, nanobelts,

nanowalls, and sensing nanodevices to fabricate chemical sensing elements and sensor arrays with tailored characteristics and tuned properties at the nanoscale level. This study covers numerous topics associated with carbon-based nanomaterials. the primary article by reports deposition method of ultrananocrystalline diamond films. Authors have incontestible application of pulse optical device deposition for diamond growth. The second article during this study is concerning atomic bonding configuration of ultrananocrystalline diamond (UNCD)/hydrogenated amorphous carbon (a-C: H) films, wherever authors have used near-edge X-ray absorption spectrum line spectrometry. The third article is concerning structural transformation upon element doping of ultrananocrystalline diamond films. Tanaka et al. report high-resolution attraction research mistreatment nanotube probes within the fourth article of this study. within the fifth article, in a very similar sort of study, report fabrication of Pd-filled carbon nanotubes for SPM applications. within the seventh article, the authors report Poly (hydridocarbyne) as extremely processable insulating chemical compound precursor to micro/nanostructures and atomic number 6 conductors. within the closing article, report strength and fracture resistance of amorphous diamond-like carbon films for MEMS applications.

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Received: June 19, 2021; Accepted: June 21, 2021; Published: June 28, 2021

Citation: Amedeo Xu (2021) Note on Nanomaterials in MEMS/NEMS. J Nanomed Nanotech. 12: e115.

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