عنوان مقاله:

High Piezoresistive Behavior of Vertically Aligned Multi-Wall Carbon Nanotubes Array

محل انتشار:

دومین همایش ملی فناوری نانو از تئوری تا کاربرد (سال: 1392)

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خلاصه مقاله:

Due to their unique electrical, mechanical, and electromechanical properties, vertically aligned carbon nanotube (VACNT) films are promising for use as piezoresistive based sensors.When VACNT is subjected to mechanical deformations, its resistance changes dramatically. This effect can be utilized for strain sensing, pressure sensing, and also for nano electromechanical transducers in micro electromechanical systems (MEMS). In this work, at first a simple method was used to fabricate VACNT films within the cylindrical pores anodic aluminum oxide (AAO) substrate.Then, electronic and mechanical properties of VACNTs were obtained after removing AAO substrate. Finally, by using VACNT films, which were attached to a paper substrate, a mechanically flexible load sensor was fabricated. Experimental results show that using VACNT film instead of random orientation carbon nanotube film increases gauge factor of the sensor, which is an important designing factor.

کلمات کلیدی:

micro electromechanical systems(MEMS), vertically aligned carbon nanotube (VACNT),piezoresistive