

Chapter 9 - Carbon nanotubes and graphene for sensor technology

ABSTRACT

Carbon-based material has sparked a great interest for future electronics and optoelectronics device applications. Particularly, carbon nanotubes (CNT) and graphene present exciting and promising prospects for sensing applications due to their interesting physical properties that offer higher sensitivity and selectivity. This review discusses the recent activities on the CNT and graphene in application as a sensor. The section begins with the introduction of the carbon materials and their properties, followed by a comprehensive step by step chemical functionalization process to transform the materials as a sensor. Finally, we address several procedures on integration of the CNT and graphene with nanoparticles respectively, which may result in a new class of nanohybrid and, in the long run, highlight some potential applications of these materials.

Keywords: Carbon nanotubes; Graphene; Chemical functionalization; Nanoparticles; Sensor