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SINGE WALL CARBON NANOTUBE SENSORS FOR GAS DETECTION AT ROOM TEMPERATURE

Abstract

Aerospace industry and space missions pay special attention to the research and advancement of gas sensors to detect, for example, launch pad fuel leak and for in- flight cabin monitoring for crew safety. As sensor materials, CNTs-based sensors represent a real option to impact the aerospace industry and space missions that require lightweight, small sized and low power consumption devices. These kinds of sensors have shown to have fast response, stability, low maintenance and detect a wide variety of gases at room temperature.

In our study, samples of oxidized single wall carbon nanotubes (SWCNTs) and SWCNTs with platinum nanoparticles were used as sensing materials. The sensors were able to detect NO2 and Cl2 in a range of concentration from 3 to 100 parts per million (ppm) and some showed linear responses. The complete recovery of the sensors was not achieved and Different approaches like heating and purging time between tests were used to improve the recovery.