

Gas Sensor Based on Carbon Nanotubes: A Review

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Abstract : Carbon nanotubes are one of the carbon nanomaterial that very popular in the field of gas sensors. It has unique properties, large surface area and has hollow structure that makes its potentially used as a gas sensor. Several attempts have been made to improve the sensitivity and selectivity of CNTs by modifying CNTs with a noble metals, metal oxides and polymers. From these studies, there are evidents that modification of CNTs with these materials can improve the sensitivity and selectivity of CNTs against some harmful gases. Decorating carbon nano tubes with metal oxides improve CNTs with the highest sensitivity and increased sensitivity of polymer/CNTs is higher than the metal/CNTs. The used of metal in CNTs aims to accelerate the reaction surface and as channel for electrons path from or to the CNTs. The used of metal oxides on CNTs built a p-n junction that can increase sensitivity. While the addition of polymer can increase the charge carriers density in CNTs.

Keywords : carbon nanotubes, gas sensors, modification of CNT, sensitivity

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