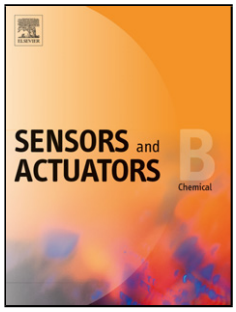

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Room temperature gas sensing properties of ultrathin carbon nanotube films by surfactant-free dip coating

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Abstract

Large-scale production of reliable carbon nanotubes (CNTs) based gas sensors involves the development of scalable and reliable processes for the fabrication of films with controlled morphology. Here, we report for the first time on highly scalable, ultrathin CNT films, to be employed as conductometric sensors for NO_2 and NH_3 detection at room temperature. The sensing films are produced by dip coating using dissolved CNTs in chlorosulfonic acid as a working solution. This surfactant-free approach does not require any post-treatment for the removal of dispersants or any CNTs functionalization, thus promising high quality CNTs for better sensitivity