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Dielectrophoretic Characterization of Tin Oxide Nanowires for Biotechnology Application

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Abstract : This study investigates nanowires using Dielectrophoresis (DEP) in non-aqueous suspension of Tin (IV) Oxide (SnO2) nanoparticles dispersed in N,N-dimenthylformamide (DMF). The self assembly of nanowires in DEP impedance spectroscopy can be determined. In this work, dielectrophoretic method was used to measure non-organic molecules for estimating the permittivity and conductivity characteristic of the nanowires. As in aqueous such as salt solution has been dominating the transport of SnO2, which are the wire growth threshold, depend on applied voltage. While DEP assembly of nanowires depend on applied frequency, the applications of dielectrophoretic collection are measured using impedance spectroscopy.

Keywords : dielectrophoresis, impedance spectroscopy, nanowires, N,N-dimenthylformamide, SnO2
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