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Effects of spin parameters variation on the structural and optical properties of spin coated polyaniline thin films

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In this study, polyaniline thin films of various thicknesses on a silicon (Si) substrate were deposited by electro-spinning polyaniline-emeraldine base (PANI (EB)) solution obtained by mixing PANI with the solvent DMSO (Di-methyl sulphur dioxide). Different thicknesses of the films were obtained by varying the spin coating time, while uniformity was investigated by varying spin coating speed. The constant flow of the solution was maintained at all times, resulting in the constant dropping of the solution on the substrate. Rutherford backscattering spectrometry (RBS) was used to determine the thickness and stoichiometry of the films for the different spin times and speeds. The crystal structure investigation was done using an X-ray diffractometer (XRD), while Fourier transmittance infrared spectroscopy (FTIR) was used to measure the consistency of the molecular structure and structural transformations of the thin films. UV-vis was used to measure the optical transmission of the thin films which resulted in the evaluation of band gap using Swanepoel's envelope method for different thicknesses.

Apply to be considered for a student award (Yes / No)?

Yes

Level for award (Hons, MSc, PhD, N/A)?

MSc

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