Study of titanium dioxide thin film by sol-gel method

Abstract

Titanium dioxide (TiO₂) thin films based interdigitated electrodes (IDEs) have been synthesized using sol-gel method with hydrochloric acid (HCl) as catalyst. The prepared TiO₂ solution has been deposited onto silicon dioxide (SiO₂) substrates via spin-coating technique. Film was annealed at 500 °C and aluminium (Al) IDEs have been fabricated. Finally the X-ray diffraction (XRD) shows high intensity of both anatase and rutile peaks exist on 10 nm TiO₂ thin film. Average crystallite size of the nanoparticles is seen to be 25 nm. UvVisible spectroscopic (UvVis) technique was used for the transmittance spectra characterization of the sample.

Keywords; Sol-Gel, Structural Properties, Titania