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Thin film based chromogenic devices

The present developmental trend is towards the new types of devices with compact size, which led to the miniaturization, better performance, reliability coupled with low cost production, low pack weight where the thin film devices and components are preferred than bulk counterparts. Nowadays the research has been raised in thin film technology due to its extensive applications in the diverse fields such as optics (anti reflection coatings, solar cells), mechanics (adhesion providers, hard layers), magnetic (Squids, video tapes), space science, semiconductor technology (resistors, capacitors), chemistry (protection against corrosion, sensors), aircrafts, defense (coatings on components) and other industries. Out of these, chromogenic devices based on electro-chromism highly attract researchers where the optical modulation (transmittance, reflectance) takes place in a reversible manner with the application of a low voltage. The schematic representation of electro-chromic window consists of seven layers. The thin films of the suitable electro-chromic layer (tungsten trioxide) and the stock layer (vanadium pentoxide) are coated with either physical or chemical vapor deposition technique at desired parameters. The liquid or solid can be used as electrolytes. In this connection our investigations are towards to improve the efficiency, response time and stability of electro-chromic layer of tungsten trioxide.

Biography

K V Madhuri is working as an Associate Professor in the Department of Science and Humanities, VFSTR University, Guntur, India. She also has the responsibilities as an Associate Dean, Research and Development in VFSTR Deemed to be University. She has completed her PhD from Sri Venkateswara University, Tirupati, India in 2003. She had worked as a Post-Doctoral Fellow at Universite de Moncton, New Brunswick, Canada from 2003-2005. Her studies involve the preparation and characterization of transition metal oxide thin films and their applications in chromogenic devices and gas sensors. She has contributed many research papers in national/international journals of repute. She also delivered invited lectures in reputed institute and conferences in India and abroad.

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