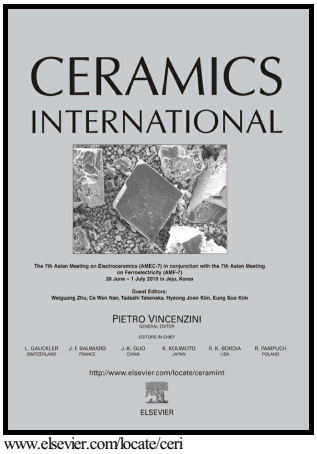

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Abstract

Thin films of Molybdenum trioxide (MoO_3) were deposited on glass substrates by the spray pyrolysis at 500 °C and the samples were then exposed to gamma γ radiation doses by ^{60}Co radioisotope at different doses (0.1, 10 and 50 kGy). The effects of gamma irradiation on the properties of MoO3 thin films were investigated. The XRD pattern and Raman spectroscopy of as-deposited MoO_3 samples show an orthorhombic structure related to α-MoO_3 with (0k0) preferred orientations. Uv-vis spectra were studied to investigate the transmission measurements of MoO_3 films. The optical energy band gap and Urbach energy were found to be gamma-dose dependent. Photoluminescence measurements at room temperature using 300 nm wavelength excitation were investigated. SEM images indicate the formation of α-MoO_3 nanorods.

Keywords: MoO_3 Oxide; Thin film deposition; Spray Pyrolysis; Gamma Irradiation

1. Introduction