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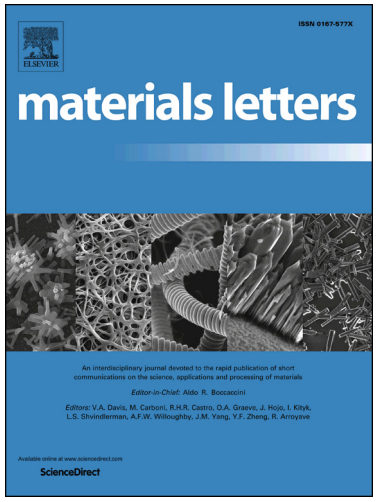

Micromorphology analysis of sputtered indium tin oxide fabricated with variable ambient combinations

Ştefan Ţ ălu, Slawomir Kulesza, Miroslaw Bramowicz, Adam M. Pringle, Joshua M. Pearce, M. Marikkannan, V. Vishnukanthan, J. Mayandi

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Micromorphology analysis of sputtered indium tin oxide fabricated with variable ambient combinations

Ștefan Țălu[1], Slawomir Kulesza[2], Miroslaw Bramowicz[3], Adam M. Pringle[4], Joshua M. Pearce[4, 5*], M. Marikkannan[6], V. Vishnukanthan[7, 8] and J. Mayandi[6, *]

[1]The Directorate of Research, Development and Innovation Management (DMCDI), Technical University of Cluj-Napoca, 15 Constantin Daicoviciu St., Cluj-Napoca, 400020, Cluj county, Romania.
[2]Faculty of Mathematics and Computer Science, University of Warmia and Mazury in Olsztyn, Sloneczna 54, 10-710 Olsztyn, Poland.
[3]Faculty of Technical Sciences, University of Warmia and Mazury in Olsztyn, Oczapowskiego 11, 10-719 Olsztyn, Poland.
[4]Department of Materials Science & Engineering, Michigan Technological University, Houghton, MI 49931-1295, USA.
[5]Department of Electrical & Computer Engineering, Michigan Technological University, Houghton, MI 49931-1295, USA.
[6]Department of Materials Science, School of Chemistry, Madurai Kamaraj University, Palkalai Nagar, Madurai - 625021, India.
[7]Department of Physics, Centre for Materials Science and Nanotechnology, University of Oslo, P.O. Box 1126 Blindern, N-0318 Oslo, Norway.
[8]Department of Materials Science, National Research Nuclear University "MEPhI", 31 Kashirskoe sh, Moscow, Russian Federation

Corresponding authors*: *jeyanthinath.chem@mkuniversity.org*, *pearce@mtu.edu*

Abstract

This study experimentally investigates the fractal nature of the DC magnetron sputtered indium-tin oxide (ITO) fabricated utilizing mixed ambient combinations and post-annealed at 450 °C in air towards solar cell applications. The structural properties of the films were examined by X-ray diffraction technique. In addition, three-dimensional (3-D) surface morphology of the films was analyzed using the areal autocorrelation function and pseudo-topothesy K for the atomic force microscopy images. The fractal nature of films was co-related with respect to electrical and optical properties of ITO films prepared under five different ambient conditions.

Key words: Indium-tin oxide thin film, different sputtering ambient, atomic force microscopy, fractal analysis, and surface topography