

SYNTHESIS AND CHARACTERIZATION OF n-TYPE TiO₂ SEMICONDUCTOR IN THREE DIMENSIONAL (3D) SOLAR CELLS

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Abstract: *The most important aim in the solar cells field is to obtain a device with low production cost, low payback time, high efficiency, which is easy to process and capable to replace the silicon solar cells. The 3D solar cells can be the new alternative to this problem. This paper presents the synthesis and characterization of the n-type TiO₂ semiconductor which has been chosen due to its chemical stability in different environments. The films are characterized by: X-ray diffraction, Scanning Electron Microscopy, Raman Spectroscopy, Current-Voltage measurements, Impedance Spectroscopy and Mott-Schottky analysis.*

Key words: *3D solar cells, TiO₂ films, impedance spectroscopy, electrical conductivity.*