STUDY OF NANOGRASS GROWTH OVER A TiO$_2$ NANOTUBES MATRIX USING GRAPHITE AS CATHODE.

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One set of TiO$_2$ nanotubes is anodized to study the time lapse of a matrix of them with presence of nanograss. The anodization process consists of an organic media of ethylene glycol and NH$_4$F salts, constant voltage for a time period 10 to 360 minutes, using graphite as an effective alternative cathode. All anodized samples are rinsed and annealed to 400 °C by 2 hours to obtain an anatase crystalline structure. The morphological characterization was carried out by Field Emission Scanning Electron Microscopy to verify the presence of nanograss and to observe how it is evolving. Raman Spectroscopy was used for optical characterization in order to identify the changes in signal intensity and Eg mode Shift associated with anodization time. It was observed that intensity suffers an increment and Eg mode Shift suffers a decrement as thickness function (anodization time).

**Keywords:** Nanotube, TiO2, Nanograss

**Acknowledgment:**

The authors are grateful to Centro de Investigación en Micro y Nanotecnología (MICRONA), Master of Science Daniel de Jesús Araujo Pérez, Engineer Rebeca Cristal Rodríguez Jiménez and Diana Balanyuk, for their help in this research.

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