

Abstract Submitted
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WO₃ nanoparticles modification for electrochromic applications using a plasma rotating reactor MUHAMMED SANCAK, GAMZE ONGOREN, Suleyman Demirel Universitesi, SORIN MANOLACHE, University of Wisconsin-Madison, NESLIHAN NOHUT, ALI GULEC, AYSEGUL UYGUN, LUTFI OKSUZ, Suleyman Demirel Universitesi — Functional nanoparticles are required for various applications including biotechnology, analytics, nanocomposites, etc. In this contribution, a rotating reactor has been used for treatment of tungsten oxide nanopowder under titanium tetrachloride plasma environments. The reactor volume is 1 L and consist of a Pyrex glass tube. Copper electrodes outside of glass cylinder are used for RF capacitive coupling. Ferrofluidic feedthroughs at both ends of reaction chamber are sealing in order to operate under vacuum conditions. The treatments have been performed at 100 mTorr pressure and 100 W 13.56 MHz RF power. Plasma treated and untreated tungsten oxide powders have been used for deposition by pyrolysis spraying of 100 nm layers from hydrogen peroxide solution on ITO conductive electrodes. The deposited layers have been characterized by cyclic voltammetry, visible spectroscopy, AFM, SEM and EDS. The devices have been investigated in visible spectral range for optical transmission and changes with applied voltages. This Work has been supported by TUBITAK TEYDEB project no:9100036

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