

Abstract Submitted
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Synthesis and Structural Characterization of Orthorhombic Vanadium Oxide Nanorods L.M. GARCIA, E. CHAVIRA, Instituto de Investigacion en Materiales, UNAM, Mexico, DF 04510, P. SANTIAGO-JACINTO, L. RENDON, Instituto de Fisica, UNAM, Mexico, DF 04510, E.E. MARINERO, Hitachi San Jose Research Center, 3404 Yerba Buena Road, San Jose, CA 95135, A. TEJADA, E. FREGOSO-ISRAEL, C. FLORES, Instituto de Investigacion en Materiales, UNAM, Mexico, DF 04510 — Nanorod structures for Li storage are of interest for rechargeable battery applications. Vanadium pentoxide is a promising battery cathode material and in this work we report on the synthesis of V_2O_5 orthorhombic single crystal and polycrystalline nanorods by the sol-gel polymerizing acryl amide method via ethylenediamine tetra acetic acid EDTA assisted hydrothermal process. In order to determine the thermodynamic stability of nanostructured polymorphs vanadates, heat treatments were performed from 450 °C to 500 °C with annealing times ranging from 48 to 72 h. The morphologies and structures of the nanorods were characterized by XRD, SEM and HRTEM. Thermo Gravimetric Analysis (TGA) was employed to monitor reaction mass losses during the course of the synthesis. Nanorod diameters ranging from 50 to 150 nm were observed. The lengths and diameter of the rods depended on the conditions of the preparation, such as concentration, and reaction time.

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