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Rapid synthesis and characterization of micro and nanostructures of molybdenum trioxide

**V. Trofim, V. Cretu, O. Lupan, M. Enachi, E. Monaico, N. Syrbu,
I. Tiginyanu, L. Chow**

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Abstract:

Micro - and nanostructures of molybdenum trioxide (MoO₃) have been investigated intensively for sensorial and electrochromic systems. MoO₃ nanostructures were grown by a rapid thermal oxidation of molybdenum at 1000 °C in oxygen environment. Its structural, morphological and optical properties were studied using scanning electron microscopy (SEM), X-ray diffraction (XRD), micro-Raman and optical transmission techniques. This work presents a new technique for facile synthesis of MoO₃ nanostructures via thermal oxidation, and the results of exploration of their properties. MoO₃ is found to consist of stratified long micro/nano-ribbons and nanowires promising for applications in sensor and other device structures..

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