

Thesis Title	Characterization of Molybdenum Oxide Nanostructure Synthesized by Hydrothermal Method
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ABSTRACT

Orthorhombic molybdenum oxide (α -MoO₃) nanobelts were successfully synthesized by the 100-180 °C and 2-20 h hydrothermal reaction of (NH₄)₆Mo₇O₂₄·4H₂O solution containing 15 ml 2 M acid (HNO₃, H₂SO₄ or HCl) with no surfactant and template adding. These products were characterized by X-ray diffraction, Fourier transform infrared and Raman spectroscopy, and electron microscopy. In the present research, the product synthesized by the 180 °C and 20 h hydrothermal reaction was α -MoO₃ nanobelts with 10 μ m long and 200-250 nm wide, 3.75 eV band gap (E_g), and the O_{2p}→Mo_{4d} charge transition at 437 nm. In addition, Ag nanoparticles were successfully composited on α -MoO₃ nanobelts by sonochemical method of AgNO₃ containing in propylene glycol.

