

ABSTRACT

Sub micrometer particles are materials that have a size smaller than 1 μm . Compared to the bulk material, the surface area and the energy gap of the submicrometer particle are larger. In general, the energy band gap is size dependent and can modify the photoluminescence. Sub-micrometers particle can be made by several synthesis methods, such as electrochemical or bipolar electrochemical methods and chemical reduction methods. In this final project, the synthesis of WS_2 sub-micrometer particle was conducted using the electrochemical synthesis method. The synthesis time and the WS_2 concentration were varied. of the electrochemical voltage was 4 volts. The time variation was from 6 to 30 hours and the result is observed every 6 hours. The WS_2 concentration was 0,009 M and 0,012 M be used in this process. The particle size analyzer (PSA) measurements showed the average size for particles synthesized for 18 hours and 30 hours were 266 nm and 233.5 nm, respectively. The photoluminescence spectra were observed at 564,883 nm for 18 hours particles synthesized.

Keywords: *Electrochemical Method, Photoluminescence, Submicrometer particles, WS_2*