

Preparation of the transparent conductive ZnO nano material by means of pulsed spray pyrolysis

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Abstract: Transparent conductive ZnO films play an important role in nano science and nanotechnology. Many methods have had various successes in preparing ZnO. In this contribution, we present some results from using a pulsed spray method and subsequent annealing in a hydrogen atmosphere for the preparation of transparent conductive ZnO films. The performances of ZnO produced by using various precursors and in various technology conditions were investigated. We attained ZnO films with sheet resistances below 100 Ω and an average transparency of about 80 % in the visible region of the light spectrum. Those values are of the same magnitude as ones prepared by using other methods. The mechanism of annealing effect in a hydrogen environment is discussed.

Author Keywords: Hydrogen annealing; Pulsed spray pyrolysis; TCO; ZnO

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