

Liquid source misted chemical deposited ZnO films: Annealing temperature influence on films properties

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A stable supply of ITO may be difficult to achieve for the recently expanding market for optoelectronic devices because of the cost and scarcity of indium, the principal material of ITO. Various oxide-based materials have recently been proposed, and wurtzite-structured ZnO thin films have been most widely studied. Many deposition techniques were applied to synthesize ZnO thin films. However, these conventional thin film deposition methods have several disadvantages. In order to overcome these problems, we have designed a liquid source misted chemical deposition (LSMCD) method. The liquid is slowly delivered onto the substrate in the form of a very fine mist which uniformly covers surface features. In this study, we focused on the fabrication of ZnO films using the LSMCD method at low temperature. And we report on the effect of the annealing temperature on ZnO surface properties, as well as on its electrical and structural properties. The structure, morphology, and optical properties of the films were studied as a function of the annealing temperatures by employing the XRD, SEM, Hall system.