Influence of the crystal structure and optical property on ZnO nanorods by Sn dopant

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In the present study, one-dimensional (1D) ZnO nanostructure have attracted by its physical, chemical properties and the possibility of applications. Many types of nanostructures have been studied and synthesized by variety of methods. The methods contains such as thermal decomposition, vapour decomposition, metal- organic vapor-phase epitaxy, and precipitation. Many researchers have focused on the fabrication of ZnO nanostructure for improvement of the real applications. In this study, ZnO nanorods were doped by Sn elements to improve the optical properties. The Sn-doped ZnO nanorods were synthesized by low temperature hydrothermal solution and modified the concentration of Sn elements. Furthermore, the change of crystal structure and optical property was observed by various devices. The morphology of Sn-doped ZnO nanorods is observed by SEM, and the crystal structure of Sn-doped ZnO nanorods is characterizsed by XRD, Moreover, the optical property and chemical composition of Sn-doped ZnO nanords are measured by PL and XPS, respectively.