Influence of Ag, Cu dopants on the second and third harmonic response of ZnO films

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Résumé en anglais	Silver- and copper-doped ZnO films were prepared by radio-frequency (RF)-magnetron sputtering on glass and quartz substrates. The influence of dopants content on the microstructural evolution and optical as well as nonlinear optical (NLO) properties were investigated. It has been found that the grain sizes were enlarged with increasing of Ag, Cu dopants amount in ZnO films. The Ag or Cu doping leads to the optical band gap narrowing. Besides, the second-order NLO response of Ag- and Cu-doped ZnO films is lower than that of undoped ZnO film. The second harmonic generation (SHG) efficiency of the ZnO:Ag film was found to be higher than that of the ZnO:Cu film at the similar concentration of dopant. In addition, the decrease of the third harmonic generation (THG) response is observed in ZnO films with increasing of Ag or Cu dopant amount.
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