

Abstract Submitted
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Refractive Index Variation of Zn-rich BaZnO Alloys Grown by Pulsed Laser Deposition HAMAD ALBRITHEN, Physics and Astronomy Department and KAIN/ King Saud University, National Center for Nanotechnology/ King Abdulaziz City for Science and Technology, ZEYAD ALAHMED, AHMED ELNAGGAR, ESSA ALSALMANI, ANWAR ALANAZI, Physics and Astronomy Department/ King Saud University, AHMED ALYAMANI, National Center for Nanotechnology/ King Abdulaziz City for Science and Technology, JOSELITO LABIS, King Abdulah Institute for Nanotechnology/ King Saud University — $\text{Ba}_x\text{Zn}_{1-x}\text{O}$ alloys have been grown by pulsed laser deposition on sapphire(0001) substrates. Three concentration were investigated, $x = 0.05, 0.1,$ and 0.25 . The XRD of the films, all concentrations, did not exhibit significant peaks, indicating amorphous structures yet film of $x = 0.05$ exhibited a very weak peak representing little crystallite within the amorphous surrounding. Spectroscopic Ellipsometry measurements were carried out to probe the optical properties of the films and the topography of their structures by an optical means. It was found that the addition of Ba to the ZnO film reduced the index of refraction for the $x = 0.05$ and 0.1 . However, when Ba doping was increased the index of refraction increased. Moreover, Ba-doped ZnO with $x = 0.05$ and 0.1 barium had homogenous films while at $x = 0.25$ the film incorporated voids, as indicated by the Elipsometric analysis as well. Funding is provided by Saudi National Plan for Science and Technology; the funding # is 10-NAN1197-02.

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