

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Deep level transient spectroscopic study of oxygen-implanted ZnO single crystal¹ ZIRAN YE, GUANGWEI DING, JINCHENG FAN, CHI CHUNG LING, The University of Hong Kong — ZnO single crystal samples were implanted by oxygen with the energy of 150keV. After the pretreatment of hydrogen peroxide [1], Schottky contacts were fabricated with Au film deposited by thermal evaporation. Deep level defects were studied by deep level transient spectroscopy (DLTS). The activation energy of the 0.29eV deep trap was observed in the as-implanted sample and samples anneal at 350 °C , 650 °C and 750 °C. Three peaks were identified in the DLTS spectra of the 900 °C sample, with the activation energies of 0.11eV, 0.25eV and 0.37eV respectively. The thermal evolutions of the deep levels up to the temperature of 1200 °C were also investigated.

[1] Q. L. Gu, C. C. Ling, X. D. Chen, C. K. Cheng, A. M. C. Ng, C. D. Beling, S. Fung, A. B. Djurišić, L. W. Lu, G. Brauer and H. C. Ong, Appl. Phys. Lett. 90, 122101, (2007).

¹This work was supported by the RGC HKSAR under the GRF scheme (No. 703108P).

Ziran Ye
The University of Hong Kong

Date submitted: 02 Nov 2010

Electronic form version 1.4