Abstract Submitted
for the SES05 Meeting of
The American Physical Society

Impurity Deionization Effects on Surface Recombination DC Current-Voltage Charateristics on Oxidized Silicon ZUHUI CHEN, BIN B. JIE, CHIH-TANG SAH, University of Florida — Impurity deionization effects on the electron-hole recombination DC base-current gate-voltage (R-DCIV) at the SiO_2/Si interface traps are investigated. It is shown that impurity deionization does not significantly affect 90% of the bell-shaped R-DCIV curve. The R-DCIV lineshape distortion due to impurity deionization is still small when recombination current is several decades smaller than its peak current for device and material parameters such as impurity concentration and oxide thickness in their practical ranges. Thus, full impurity ionization approximation can be employed without loss of accuracy in using the R-DCIV methodology to extract the parameters.

Chih-Tang Sah
University of Florida

Date submitted: 13 Jul 2005 Electronic form version 1.4