Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Determination of the energy level of boron induced charge traps in Si/SiO_2 systems by second harmonic generation HEUNGMAN PARK, Vanderbilt Univ., JINGBO QI, YING XU, KALMAN VARGA, GUNTER LÜPKE, NORMAN TOLK — Interfacial charge traps were characterized using second harmonic generation (SHG) in highly boron-doped Si/SiO_2 systems. We propose the presence of B^- and B^+ ions in Si substrate and SiO_2 respectively across the interface [1]. A two color pump-probe SHG experiment was performed to determine the energy level of the B^+ ion in the oxide. A threshold wavelength of 475 nm (2.61 eV) was found for single photon excitation of electrons from the Si valence band to fill B^+ charge traps in SiO_2 [2]. This work was supported in part by DOE.

[1] H. Park and Y. Xu J. Qi, K. Varga, S. M. Weiss, B. R. Rogers, G. Lüpke, N. Tolk, Appl. Phys. Lett. 95, 062102 (2009).
[2] To be published.

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Date submitted: 29 Dec 2009 Electronic form version 1.4