Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Multiple double donors of magnesium-related impurities in silicon

L.T. HO, Institute of Physics, Academia Sinica, Taipei, Taiwan — It is well-known that the group-II magnesium, when diffused into silicon, enters the silicon lattice interstitially and behaves as a helium-like double donor with the ionization energies determined from the excitation spectra measured at liquid helium temperature to be 107.50 meV and 256.47 meV for neutral magnesium donor and singly ionized magnesium donor, respectively. Recently, from the high-resolution FT-IR absorption spectrum of magnesium-doped silicon measured at liquid helium temperature we have observed several additional spectral lines apparently due to different double donors. This clearly indicates that there are multiple double donor centers for magnesium-related impurities in silicon.

James C. Ho
Wichita State University

Date submitted: 27 Nov 2004 Electronic form version 1.4