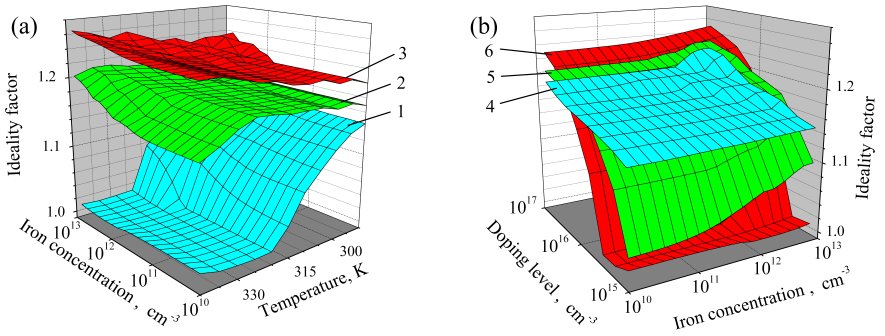

Figure 1: Ideality factor as a function of the iron concentration, temperature (a), and dopant (boron) concentration (b). FI–SRH case. N_A cm^{-3}: 10^{15} (surface 1), 10^{16} (2), 10^{17} (3). T, K: 290 (4), 315 (5), 340 (6).

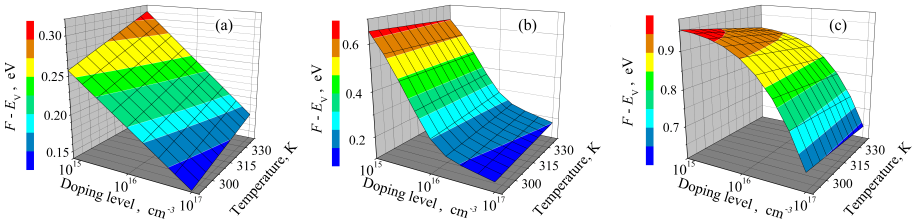

Figure 2: Fermi level position as a function of the temperature and dopant (boron) concentration. Base depth x, μm: 26 (a), 0.26 (b), 0.028 (c).

Supplementary materials

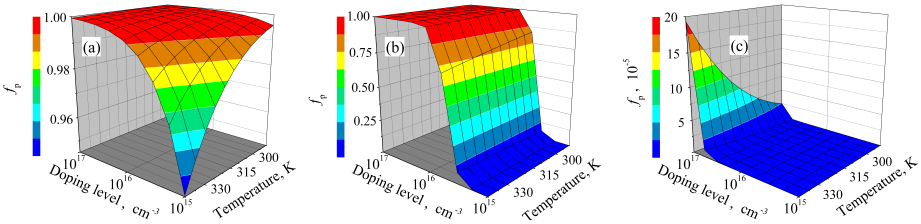

Figure 3: Fermi level position as a function of the temperature and dopant (boron) concentration. Base depth x, μm: 26 (a), 0.26 (b), 0.028 (c).

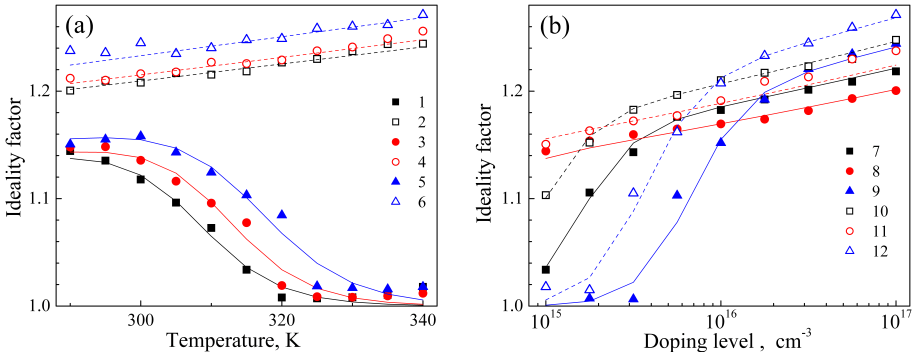

Figure 4: Ideality factor as a function of the temperature (a), and dopant (boron) concentration (b). FI–SRH case. The marks are the simulation results, and the lines are the fitted curves using Eq. (??) and (??) ($m_T = 1.13$, $m_B = 2.85$). N_{Fe}, cm^{-3}: 10^{10} (curves 1, 2, 7, 8, and 9), 10^{12} (3, 4), 10^{13} (5, 6, 10, 11, and 12). N_{A} cm^{-3}: 10^{15} (1, 3, and 5), 10^{17} (2, 4, and 6). T, K: 290 (8, 11), 315 (7, 10), 340 (9, 12).

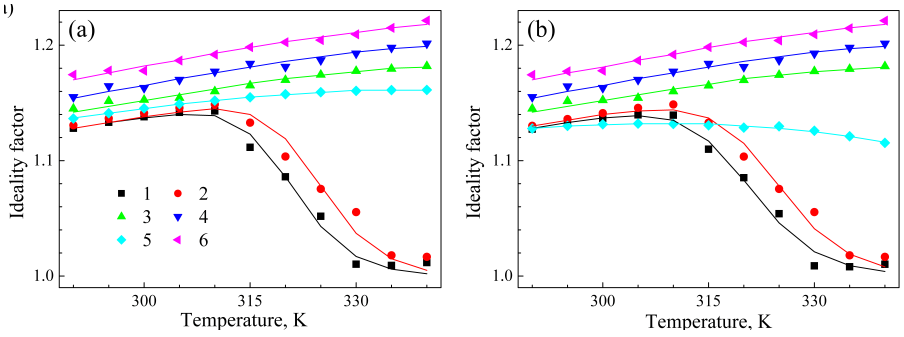

Figure 5: Temperature dependencies of the ideality factor. FIFB–SRH (a) and FIFB–SRHBBA (b) cases. The marks are the simulation results, and the lines are the fitted curves using Eq. (**??**) and (**??**) ($m_T = 2.2$). N_{Fe}, cm^{-3}: 10^{10} (curves 1, 5), 10^{12} (3), 10^{13} (2, 4, and 6). N_{A} cm^{-3}: 10^{15} (1, 2), 10^{16} (3, 4), 10^{17} (5, 6).