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**Admittance spectroscopy of electronic states**

**of dislocation networks in the silicon bonded wafers.**

***Kolevatov Ilia***

Up to this day deep levels transient spectroscopy (DLTS) was the main technique for studying near-surface dislocation networks (DN). However, owing to the specificity this approach allows to investigate the centers with energies just more than 100mEv. At the same time, the greatest interest for the research is represented by the swallow dislocation-related states. Application of admittance spectroscopy could allow us to define parameters of this traps considering that the method is possible to measure the rate of exchange levels for at least three orders less than in the DLTS method.

The purpose of this work was the consideration of a number of physical models and their suitability for objects with DN buried at a shallow depth. The next step was the determination of the parameters of swallow states related with DN.

Application of admittance spectroscopy technique for direct currents permits to obtain the spectrum of states near the edges of valence and conduction bands. It is possible to conclude that we deal with band-like states in p- and n-types.

**List of publication:**

1. Bondarenko, A., Vyvenko O., Kolevatov, I., Isakov, I., Kononchuk, O. "Dislocation structure, electrical and luminescent properties of hydrophilically bonded silicon wafer interface" (Diffusion and Defect Data Pt.B: Solid State Phenomena 178-179 , pp. 233-242).
2. Kolevatov I. "Admittance spectroscopy of near-surface quantum-dimensional semiconductor structures" (published and presented at International Student Conference “Science and Progress”. Conference abstracts).
3. Kolevatov I., Trushin M., Vyvenko O. “Energetic spectra of dislocation networks produced by hydrophilic bonding of silicon wafers” (will be presented at conference “Extended Defects in Semiconductors 2012”).