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Computer Simulation of Contacts on CdZnTe

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The issue of contacts to high resistivity semiconductors in general and to II-VI group, in particular, has always been a great challenge. Such is the case for semiconductor radiation detectors based on CdTe and Cd_{1-x}Zn_xTe. Interpretation of experimental results is always based on some physical model of the device. Thus, incorrect modeling is bound to lead to misleading conclusions. In modeling of high resistivity semiconductor devices, particularly wide-bandgap, special care must be taken, since many classical, “textbook” assumptions are not valid.

In this work Cd_{0.9}Zn_{0.1}Te devices with various contacts are calculated using finite element computer program. The influences of velocity saturation, generation-recombination and deep levels on the energy band structure and device characteristics are discussed.

for the collaboration

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