

The main focus of this thesis is the characterization of the charge transport in CdZnTe radiation detectors and the study of the effect of the detector illumination on charge transport. The transport properties are evaluated using Laser-induced Transient Current Technique and the Monte Carlo simulation is used for fitting the measured current waveforms. The properties of the detector prepared from semi-insulating CdZnTe single crystal with a platinum Schottky contacts were measured in the dark in the unpolarized and polarized state and under the anode and cathode continuous LED above-bandgap illumination.