

Silicon carbide (SiC) is due to its unique electrical and mechanical properties very important material for photonics and electronics. Hexagonal polytypes of SiC are being used as substrates for the growth of epitaxial graphene. SiC shows Pockels linear electro-optic effect. The goal of this thesis was to use Pockels effect and evolve the method to study profiles of inner electric fields and accumulations of electric charges inside SiC, whose variations may influence functions of optoelectronic components. Our method consists in complex evaluation of optical transmittances of crystals inserted between crossed polarizers. It has been shown that the excitation light with photon energy near the bandgap of SiC significantly influences profiles of inner electric field due to accumulation of photogenerated charge on traps. The conclusion of the thesis concentrates mainly on the discussion of causes affecting the accuracy of this new method.