DIPLOMA THESIS ABSTRACT

Study of properties of nanostructured aluminum oxyhydroxides in terahertz range

Diploma thesis of
Mukhin V.I.

Scientific advisers:
Prof. A.N. Khodan, IPCE RAS
Prof. A.P. Shkurinov, MSU

This study is aimed in research of materials consisting of nanostructured aluminum oxyhydroxides (NOA) and its modification with silicon oxide (NOAM) for application in creation of operating elements for terahertz optics. Transmission electron microscopy (TEM), X-ray structure-phase analysis and thermogravimetric analysis methods were used to investigate structural and chemical composition changing of NOA and NOAM with isochronous annealing. Absorption and refraction spectra of NOA and NOAM were obtained by pulse terahertz spectroscopy method. The effective medium model was used to calculate absorption and refraction spectra of NOA and NOAM fundamental component – fiber. Changes of those spectra with annealing were traced in conjunction with a change of structure and chemical composition. Results of this study could be used for calculation of absorption and refraction coefficients of any elements made of NOA and NOAM.

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