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标 题 : STUDY OF THE PROPERTIES OF NANOSTRUCTURED ALUMINUM OXYHYDROXIDE IN THE TERAHERTZ FREQUENCY RANGE
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摘要: Using the method of pulsed terahertz spectroscopy, we study the absorption and refraction spectra of nanostructured aluminum oxyhydroxides and oxides and their chemical modifications by silicon oxide. The obtained experimental results were used in the Bruggeman model of effective medium approximation for calculating the absorption and refraction spectra of fibrils, which are the basic structural elements of these nanomaterials. The studies performed in the temperature range 20-1200 degrees C allow us to follow variations in the absorption coefficients and refractive indices and their relation to variations in the structural-phase state and the chemical content of nanostructured aluminum oxyhydroxide and oxide and their chemical modifications by silicon oxide. Special attention is paid to studying the influence of the content and state of water and its derivatives in the structure and on the surface of nanomaterial. The obtained results make it possible to quantify the absorption and refraction in materials and media created on the basis of nanostructured aluminum oxyhydroxide and oxide and their chemical modifications by silicon oxide.
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