Abstract

Currently, organic crystals are becoming increasingly popular in nonlinear optics, since modern organic chemistry provides a wide range of possibilities for constructing complex compounds with specified physical properties. This work is devoted to the study of nonlinear optical properties of a new promising organic crystal GUHP (guanylurea(1+) hydrogen phosphite) and the possibility of its use for generating terahertz radiation by optical rectification. Calculations of the phase synchronism angles of the GUHP crystal for two types of interaction in the crystal transparency region are performed. An experimental setup has been created that allows us to determine the components of the second-order nonlinear susceptibility tensor for a wavelength of 800 nm. The second harmonic signal of the GUHP crystal was registered at the orientation (001) and different angles of incidence of radiation. On the example of a sample of a GUHP crystal with an orientation (001) with a thickness of 2.2 mm, the applicability of the Maker fringes method for determining the components of the second-order nonlinear susceptibility tensor is shown.