

PROBLEMS OF TERAHERTZ RADIATION METROLOGY IN MEDICINE

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The purpose of this work is to consider the issue of safe propagation of terahertz radiation in biological objects. The article gives a brief review of studies of the influence mechanisms of terahertz radiation on biological environments. It considers optical characteristics of blood and its components in the THz frequency range. It is found that the boundaries of the terahertz wavelength range are not precisely defined. It is established that the recently discovered "photon jet" effect allows terahertz radiation to penetrate biological objects to considerable depths, due to the effect of a quasi-optical mesoscale waveguide composed of spherical or disk particles. Amplification of small-sized particles that form a photon jet can significantly increase the value of the radiation intensity density at the biological object of study.

Keywords: photon jet, dimensionless particle, terahertz wavelength range, biological medium, quasi-optical mesoscale waveguide

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