

Two cases of the laser pulse action on a particle are considered, a single pulse and a series of pulses. The dynamics of the temperature isoline propagation is obtained at which protein denaturation occurs in the space around the metal nanoparticle in the cases when the particles are heated by a single pulse and a series of pulses. The dependence of the heating rate and the heating depth of the medium on the laser pulse repetition frequency is found.

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NEW LOT OF SOURCES OF ELECTROMAGNETIC RADIATION FREQUENCY FOR HIGH RESOLUTION IMAGING ON THE BASIS OF GAS-CLUSTER ENVIRONMENTS

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Well-proven X-ray point sources on the basis of which new methods of X-ray tomography of high resolution. The resolution of such systems is determined by topographic small size power generated on the target surface by a femtosecond laser pulse. Combining one study Metolit X-ray and terahertz imaging can increase the information content of the study due to additional information about the structure of tissues and their hydration.

In this paper we describe a new source of electromagnetic radiation on the basis of gas-cluster environments which combines both the generation of X-ray and terahertz radiation. The prospects of its use in practical applications.

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APPLICATIONS OF LASER SPECTROSCOPY AND DATA MINING METHODS FOR COMPLEX GAS MIXTURE ANALYSIS

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Exhaled air is a complex multi-component mixture, the composition of which can vary, depending of metabolism of the human in the current state.

Analysis of the composition of exhaled air using standard methods of the inverse spectroscopic problem solution for absorption spectra of the samples are useful only for a few components. In this work, data mining methods were applied to select the most informative spectral absorption coefficients of exhaled air from the point of view of separation of the investigated nosology and to analyze the content of the complex gas mixture.

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