

Structures of dust particles in the plasma created by the vertical proton beam and their influence on optical radiation transfer.

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The results of the experimental investigation of a behavior of dust particles in a track plasma generated by the vertical beam of accelerated protons. The ordered structures of dust grains in the plasma of the vertical proton beam are qualitatively similar to structures that have been obtained for the horizontal beam. Crystallization of the dust component has not been observed. Nevertheless, there is an interest for a number of new phenomena: a formation of superdense dust rings, motion of superdense compact structures in a space, cyclic motion of individual grains. Besides, there has been developed a method of experimental studies, the facility was improved.

The experimental investigation of an influence of dust particles in the nuclear induced plasma of krypton on an emission of optical radiation in the UV range.

The mathematical model of kinetic processes in the nuclear induced plasma of inert gases has been developed. The model allows to calculate the UV radiation emission. The method for mathematical simulation of a transfer of optical radiation in the nuclear induced dusty plasma has been developed and programs for the simulation were made. The simulation of a transfer of the UV and visible optical radiation in the gas nuclear induced dusty plasma has been performed.