

# **Experimental Investigation of Processes in Dusty Plasma Structures under Electron Beam Action**

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The electron beam is known as convenient instrument that allows one to act on dusty plasma structures. This action results in changing of the parameters of plasma within which under gravitational and electrical force dust macroparticles are levitating. By applying an electron beam with variable sweep frequency one has an opportunity of effecting the whole structure or only part of it as well. This work was devoted to studying the dynamical processes in dusty plasma cloud under the action of electron beam. This effect produce changes in such dusty plasma parameters as interparticle distance, mean macroparticle velocity, and coupling parameter. The relaxation processes that took place in the system after electron beam switching of were also studied. It was marked that the characteristic relaxation time (during which the system calms down to its initial state) is much less than the time of system perturbation caused by the electron beam. The relaxation time is estimated about several tens of seconds. The dependencies of macroparticles concentration on time and the coupling parameter on time were obtained on the basis of the experimental data. Also the kinetic temperature-time dependence for the dusty plasma system was presented.

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