Domains of equal efficiency of ion trap in a complex plasma of a glow discharge

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Issues related to the control of ion parameters in plasma are relevant in the implementation of plasma-chemical reactions with their participation. In this work, the parameters of low-pressure glow discharge plasma in neon with microparticles are determined, at which in the cloud of charged microparticles, domains of the same energy efficiency of accumulation of ions are formed. The efficiency of such an ion trap is determined based on the calculation of a number of indicators related to a single and the cloud as a whole [1,2]. The formation of domains with equal ion retention efficiency is inherent in dissipative synergetic plasma systems [3,4]. The feedback is formed by plasma processes that compensate for plasma losses on microparticles. In this regard, the cloud of microparticles represents the main link in the control chain of plasma-chemical processes, where the efficiency domains define the areas of control of parameters [5]. The feedback depth is determined by the degree of microparticle action on the plasma and is regulated by changing cloud parameters. The ability to control processes in complex plasma can contribute to increasing stability and reproducibility of its parameters.

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