TRAJECTORIES OF CHARGED MICROPARTICLES IN A LINEAR QUADRUPOLE TRAP WITH A RECTANGULAR POTENTIAL

Dobroklonskaya M.S.,* Vasilyak L.M., Pecherkin V.Ya., Vladimirov V.I.

JIHT RAS, Moscow, Russia
**mdobro@jiht.ru*

Currently, the linear quadrupole electrodynamic trap has been widely used as an effective device for capturing and retaining nano- and microparticles in vacuum and at atmospheric pressure in a gaseous medium, which is explained by the simplicity of the design and long-term retention of charged particles in the trap. A new promising area of application of traps may be the rapid determination of the size and charge of particles along the trajectories of particle movement in the trap, and the most interesting is the ability to determine the charge sign of micron particles in the air at atmospheric pressure. For the harmonic waveform, the behavior of Coulomb systems and individual microparticles in a quadrupole linear trap has been well studied. In this work, experimental studies and computer modeling of diagnostics were carried out the sign of the particle charge at a rectangular pulse voltage on linear electrodes of a horizontal quadrupole linear trap.