CONFINEMENT OF CHARGED MICROPARTICLES IN A GAS FLOW BY THE LINEAR PAUL TRAP

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Charged dust particles (microparticles) are often present in many power installations where they can play a positive or negative role. As an example let us mention installations of plasma etching in which the formed particles are to be removed as well as in the fusion devices. But there are problems when it is necessary to remove particles of definite sizes that is not possible to achieve with the help of electrostatic precipitators using the direct current corona discharge. In the previous works [1, 2] we demonstrated a possibility to confine the Coulomb systems of charged microparticles in the atmospheric pressure air with the help of the electrodynamical traps. We have determined the regions of a confinement of charged microparticles in a wide range of parameters (charge, mass, radius of microparticles, electric field strength and its frequency). To capture and confine charged microparticles in a gas flow the updated electrodynamical trap has been suggested [3]. The aim of the present work was the experimental study of a possibility to confine charged microparticles in the linear Paul trap in a gas flow. The possibility to confine charged microparticles in a gas flow using the linear Paul trap was confirmed experimentally.