

MEASUREMENT OF THE ION DRAG FORCE
IN A COMPLEX DC-PLASMA
USING THE PK-4 EXPERIMENT

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S u m m a r y

The force acting on a microparticle in a complex plasma by streaming ions, the so-called ion drag force, is not well known. However, it is important for the understanding of interesting phenomena in complex plasmas such as the void formation under microgravity conditions. The PK-4 experiment, which is developed for a later use on the board of the International Space Station, is ideally suited for investigating this problem. In this experiment, a complex dc-plasma is created in a glass tube, in which the microparticles flow from the cathode to the anode. Measuring the microparticle velocities, the forces on particles for different particle sizes, pressures, and dc-currents can be extracted by assuming the force balance. Experiments have been performed in the laboratory as well as under microgravity using parabolic flights. The results of these experiments will be presented and compared to theoretical predictions.