

MACROPARTICLE MOVEMENT VELOCITY  
IN DUSTY STRUCTURES OF VARIOUS  
COMPOSITIONS

*A.D. Khakhaev, A.A. Piskunov, S.F. Podryadchikov*

Petrozavodsk State University,  
Research and Educational Center on Basic Problems  
of Application of Low Temperature Plasma Physics  
(10, Universitetskaya Str., Petrozavodsk 185910, Russia;  
e-mail: piskunov@plasma.karelia.ru)

S u m m a r y

The results of experimental investigations of the movement velocity of a macroparticle in the dusty structures of various physical-chemical compositions formed in a stratified column of a dc glow discharge, are presented. The macroparticle substances are alumina ( $r = 10 - 35 \mu\text{m}$ ), polydisperse Zn ( $r = 1 - 20 \mu\text{m}$ ) and Zn' ( $r = 20 - 35 \mu\text{m}$ ). Plasma-forming gases are inert gases (Ne, Ar). The inverse relation between the velocity and the gas pressure (in the range 40–400 Pa) is found and, for the same material of macroparticles in different gas plasmas, is confirmed by theory and does not contradict observations. But, to explain a difference of quantitative data for macroparticles made from different materials in Ar plasma, the additional research is required.