Abstract Submitted
for the GEC10 Meeting of
The American Physical Society

Dusty Plasmas of Gas Mixtures SERGEY MAIOROV, A.M. Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, SERGEY ANTIPOV, MICHAIL VASILIEV, OLEG PETROV, VLADIMIR FORTOV, Joint Institute for High Temperatures of the Russian Academy of Sciences, Moscow — The data obtained in numerical calculations of characteristics of drift of ions and electrons in constant electric field in *He-Kr* mixtures allowed us to make the analysis of the first experimental results on qualitative level. It follows: - first, at low concentration of *Kr* anisotropy of interaction of dust particles, that is most strongly shown in the big difference of distances between particles in a chain and between chains at 1% *Kr* and low pressure, increases; this fact naturally associates with supersonic character of the ionic stream; - secondly, in *He-Kr* mixtures even at very low concentration of *Kr* (much less than 1%) helium ions practically are not presented, also the characteristics of the ionic stream are caused by *Kr* atoms; - thirdly, at a high pressure change of *Kr* concentration influences more considerably on average distances between dust particles (distances between particles in chain are approximately equal to interchain distances); this fact can be connected with that circumstance that change of *Kr* concentration influences on average electron energy more strongly because of the big energy inputs to *He* excitation and almost total absence of its ionization.

Sergey Maiorov
A.M. Prokhorov General Physics Institute
of the Russian Academy of Sciences, Moscow

Date submitted: 08 Jun 2010 Electronic form version 1.4