

15<sup>th</sup> International Conference on  
the Physics of Non-Ideal Plasmas  
Almaty, August 30- September 4,  
2015

**QNP**



# Book of Abstracts

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## The influence of the ionic composition of the plasma on dust structures in the combined discharge of radiofrequency and electrostatic fields

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Gas discharge of combined radiofrequency and direct current is used in many plasma technologies, especially in cleaning and surface treatment of materials, in sterilization of medical instruments, etc. [1-4]. In this type of combined discharge the ions flow towards one of the electrodes can be controlled. It could be useful in dielectric barrier discharge, for example, in making of nano-coating on the dielectric substrate, where the directed ion flow plays a main role.

In this paper the results of the experimental investigation of the effect of ionic composition on the dust structures in the combined discharge are presented. The experiments were carried out on the RF setup, which detailed descriptions are shown in [5-7]. It was shown that the influence of the ion flow on the formation of the vertical chain structures demonstrate some several features. Also, the influence of the composition of the ion flow on the dusty structures was investigated. One can conclude that it is possible to control formation of dust structures by the ionic composition.

Also, the structural properties of plasma-dust structures were studied. It was shown that increasing constant field in the combined RF and DC discharge decreases the average interparticle distance.

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