

NON-MAXWELLIAN VELOCITY DISTRIBUTION  
OF GRAINS IN DUSTY PLASMAS WITH ION FLOW

*W. Ebeling, F.P. Onufrieva<sup>1</sup>, I.M. Tkachenko<sup>2</sup>,  
S.A. Trigger<sup>3</sup>*

Humboldt University  
(15, Newtonstr., Berlin-Adlershof D-12489, Germany),

<sup>1</sup>Laboratoire Leon Brillouin  
(CEA/Saclay, Gif-sur-Yvette 91191, France;  
e-mail: onufri@bali.saclay cea.fr),

<sup>2</sup>Polytechnic University of Valencia,  
Department of Applied Mathematics, ETSII  
(Valencia 46022, Spain),

<sup>3</sup>Joint Institute for High Temperatures,  
Russian Academy of Sciences  
(Moscow 127412, Russia)

S u m m a r y

The concept of generalized friction is used for the calculation of the ion flow influence on the distribution of charged grains. The generalized friction force acting on grains due to ion scattering and atomic friction can be represented via the friction coefficients with atoms  $\beta_a$  and with ions  $\beta_i$  for the respective Fokker–Planck equation for grains. The stationary distribution of grains is found to be non-Maxwellian. A generalization of this method to the case of active particles (including biological objects which are able to self-motion) is discussed.