

The model of the DC discharge positive column with a dusty component.

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An account of the dusty component effect on the discharge parameters is important for investigations of the ordered dusty structures in the low pressure gas discharge plasmas. The grains carry a large charge and are centres of the recombination. They essentially affect on the ambipolar field and the charged particles transport in discharge. So, the form and properties of the dusty clouds are determined not only inter grains interactions but an interaction of the whole cloud with discharge too.

For the numerical calculation of the DC discharge positive column plasma parameters the non-local model of discharge is developed. This model is generalisation of Tsendin's approach for the longitudinally and radially inhomogeneous positive column, and includes interactions of ions and electrons with grains. The simulations are performed for the discharge and dusty cloud parameters corresponded to experimental conditions.