

# **Non-ideal plasma and effect of collective electronic screening of nucleus charges in the current ring in gas**

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It is shown, that the current ring supported in balance by pressure of external gas may have significant life time (up to tens seconds) if at its formation non-ideal plasma as two thermodynamically independent subsystems - subsystem concerning inactive positive ions and subsystem relativistic electrons, cooperating through an electromagnetic field created by charges is formed.

The analysis of processes of getting of the current ring is carried out at influence on plasma a pulse toroidal magnetic field, values of parameters of a pulse of an induction of the magnetic field, pumping out of plasma providing small time from internal volume current rings, and occurrence of generation of a current accelerated electrons are found, therefore the mentioned above subsystems of plasma are formed.

For a case of use deuterium as plasma carrier gas the possibility of reactions of nuclear fusion in a subsystem of positive ions is considered due to effect of collective electronic screening charges of the nucleus, provided by a subsystem relativistic electrons.

Experimental results of getting current rings by a method of electric explosion turned in torus a wire spiral at which inside a spiral before explosion creates a powerful toroidal magnetic field which then sharply falls down at explosion of a delay are considered, the part of this field is grasped by plasma and as a result is formed plasmoid with abnormal high time of life.