Contribution ID: **426** Type: **Oral talk (15 min + 5 min questions)**

Energy conversion in electronically controlled discrete ion-plasma dynamics installations

Friday, 15 July 2022 13:10 (20 minutes)

The technique and technology for the creation and formation of electronically controlled ion and plasma fluxes in the magnetic fields by grouping the flows with setting certain sequences of the self-following have been worked out to solve the problem of controlled nuclear fusion. The operation of the units is based on the physical principles of plasma and ion flows compaction with a discrete change in the control parameters of magnetooptical systems. Theoretical and applied aspects of the magnetodynamic flow of controlled plasma simulation are considered. The description of an example circuit for the plasma neutron generator and the rationale for the discretization of compacted plasma and ion flows based on the introduction of the concept of flows discretes are considered. The processes of experimental installation of an electronically controlled ion generator and the characteristics of a prototype industrial installation are considered. Nuclear reactions suitable for modifications of such generators are considered. It is planned that the electronically controlled plasma energy converter device will have the design thermal power more than 10 kW, electric power more than 5 kW. On the basis of the technology under consideration, the neutron generator with the plasma target will be created with the impulse of neutron flux from 1010 c−1.

1. G. A. Mesyats, Pulsed power, Springer (2005).
2. N. Burtebaev et al., World Academy of Science, Engineering and Technology. 74, 176 (2011).
3. V.V. Radenko etc. Advances in Engineering Research. 210, 197 9(2022).

The speaker is a student or young scientist

No

Section

1. Design and development of charged particle accelerators and ionizing radiation sources

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