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**THE METOD OF NONLINEAR CONVERTING OF ELECTRICAL SIGNALS FOR CONTROL AND DRIVING SYSTEMS OF THE NUCLEAR PHYSICS EQUIPMENT**

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There is need for devices of nuclear physics, in particular in nuclear reactors control systems, which are carrying out nonlinear transformations. It is possible to believe to them logarithmic amplifiers, meter the period of nuclear reactor etc. The methods of functional transformation of electrical signals and opportunity construction of devices with nonlinear transformation on the basis of the offered methods of definition of a voltage in structures with distributed potential on them are investigated in the work. These devices have a wide dynamic range, high speed of transformation and stability of parameters. The peculiarity of them is the possibility to construct the devices by the given beforehand law of transformation function. The variants of realization of functional converters are presented.



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**VAN-DE-GRAAFF GENERATOR BEAM CONTROL SYSTEM**

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Ion beam control system lightens the work for controlling the generator's state, guiding the beam to experimental setups, and monitoring it when experiments are made.

The system provides beam tracing along an ion-guide, measuring beam current before and after distributing magnet and beam electric charge at exposed sample, indirect evaluation of beam current before an experimental chambers where scattered ions are detected.

The system consists of three devices for beam measuring and observing that are a rotating beam chopper with a semi-conductor detector for detecting scattered ions and a current integrator. The devices for beam measuring and observing provide beam current