

HIGH-CURRENT PULSED INDUCTION PLASMA SOURCE FOR GENERATION OF HIGH INTENSITY ION BEAMS OF DIFFERENT GASES

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The paper describes a plane induction plasma source with a pulsed gas puffing to the discharge area. The use of a cone-shaped multi-start two-turn shock coil (inductor) with a bipolar power supply enabled to significantly increase a transformed current into inductive-coupled plasma under high values (about 350 V/cm) of a vortex electrical field. The set of the defined conditions stabilized the beginning of initiation and evolution of a discharge, as well as ensured the required level of the ion-emission capability of the source for generation of high intensity ion beams. Within a range of a gas pressure 1–10 Pa, the source demonstrated rather high efficiency of energy input into plasma (about 70–80 %). The electrophysical characteristics of an induction source, the parameters of a gas flow in the discharge area and plasma at the output in the plane of emission are described.

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