Investigation of the initial stages of the formation of Рlasma flows generated in plasma FOCUS DISCHARGE

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On the plasma focus "PF-3" means a high-speed photographic step of forming the pinch has been investigated, which is the source of the axial plasma flow. Emphasis was placed on the registration of the initial moment of the flow generation. The observed behavior of the axial flow of matter at different heights above the anode. It was found that the radiation in the visible region at a distance of 4.5 and 8.5 cm from the anode occurs before the current-carrying shell compression at this height axis. This radiation occurs at the time of formation of the pinch at the anode and can be caused by axial plasma flow or ionization of the background gas under the influence of X-rays. It has a spatial and temporal modulation, and observed until the compression on the current-carrying shell at this height axis. At the end of the compression of the pinch, at the level of the upper plane of the current-carrying shell formation was fixed axial plasma streams moving at a speed exceeding 1.0·107 cm/s. These flows also have spatial and temporal modulation. There is reason to assume that these substances are observed flows at a considerable distance from the anode in the form of compact jets [1-3]. A combination of several streak- cameras with slits, placed in different directions and at different distances from the anode plane allowed to recreate the spatial formation picture of the axial material flows.

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