Contribution ID: **152** Type: **contributed talk**

Laboratory simulation of jet propagation in ambient medium with Plasma Focus facilities

Tuesday, 9 July 2019 15:00 (15 minutes)

Plasma focus (PF) facilities have proved to be an effective tool in the modeling of outflows from compact astrophysical objects [1]. The specific feature of the experimental scheme with PF is the possibility to study the propagation of plasma flows over long distances, while we are able to change the parameters of the ambient medium. The talk provides a brief overview of the latest experiments on the PF-3 (NRC "Kurchatov Institute", Moscow) and PF-1000 (IPPLM, Warsaw) facilities. The main emphasis is made on the simulation of the bow shock wave. The effect of pre-ionization of background gas by the radiation of the plasma flow is shown. The effects of radiation cooling and magnetic fields on the collimation and stability of the plasma flow are analyzed. The results of experiments with an external poloidal field are presented. The increase in both the poloidal and toroidal components of the captured magnetic field is shown. This effect may be due to the rotation of the plasma flow.

The reported study was funded by RFBR according to the research project № 18-29-21006

References.

[1]. V.I. Krauz, V.S. Beskin and E.P. Velikhov. IJMP D, 27, (2018) 1844009

Primary author: KRAUZ, Vyacheslav (NRC Kurchatov Institute)

Presenter: KRAUZ, Vyacheslav (NRC Kurchatov Institute)

Session Classification: Formation and propagation of relativistic outflows

Track Classification: Formation and propagation of relativistic outflows