

Abstract Submitted  
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**Generation of electromagnetic emission during the injection of dense supersonic plasma flows into arched magnetic field**<sup>1</sup> DMITRY MANSFELD, SERGEY GOLUBEV, MIKHAIL VIKTOROV, ALEXANDER VODOPYANOV, Institute of applied physics of Russian Academy of Sciences, GEORGE YUSHKOV, Institute of high current electronics, Siberian Branch of Russian Academy of Sciences — Interaction of dense supersonic plasma flows with an inhomogeneous arched magnetic field is one of the key problems in near-Earth and space plasma physics. In this work a new experimental approach is suggested to study interaction of supersonic (ion Mach number up to 2.7) dense (up to  $10^{15} \text{cm}^{-3}$ ) plasma flows with inhomogeneous magnetic field (an arched magnetic trap with a field strength up to 3.3 T) which opens wide opportunities to model space plasma processes in laboratory conditions. Fully ionized plasma flows with density from  $10^{13} \text{cm}^{-3}$  to  $10^{15} \text{cm}^{-3}$  are created by plasma generator on the basis of pulsed vacuum arc discharge and injected into open magnetic trap across magnetic field lines. The filling of the arched magnetic trap with plasma and further magnetic field lines break by dense plasma flow was accompanied by pulsed electromagnetic emission at electron cyclotron frequency range, which can be generated by electrons in the place of intensive deceleration of plasma flow in magnetic field.

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