

Abstract Submitted  
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**Atmospheric Gaseous Plasma with Large Dimensions** SERGEY KORENEV, Lynntech, Inc. — The forming of atmospheric plasma with large dimensions using electrical discharge typically uses the Dielectric Barrier Discharge (DBD). The study of atmospheric DBD was shown some problems related to homogeneous volume plasma. The volume of this plasma determines by cross section and gas gap between electrode and dielectric. The using of electron beam for volume ionization of air molecules by CW relativistic electron beams was shown the high efficiency of this process [1, 2]. The main advantage of this approach consists in the ionization of gas molecules by electrons in longitudinal direction determines by their kinetic energy. A novel method for forming of atmospheric homogeneous plasma with large volume dimensions using ionization of gas molecules by pulsed non-relativistic electron beams is presented in the paper. The results of computer modeling for delivered doses of electron beams in gases and ionization are discussed. The structure of experimental bench with plasma diagnostics is considered. The preliminary results of forming atmospheric plasma with ionization gas molecules by pulsed nanosecond non-relativistic electron beam are given. The analysis of potential applications for atmospheric volume plasma is presented. Reference: [1] S. Korenev. “The ionization of air by scanning relativistic high power CW electron beam,” 2002 IEEE International Conference on Plasma Science. May 2002, Alberta, Canada. [2] S. Korenev, I. Korenev. “The propagation of high power CW scanning electron beam in air.” BEAMS 2002: 14th International Conference on High-Power Particle Beams, Albuquerque, New Mexico (USA), June 2002, AIP Conference Proceedings Vol. 650(1), pp. 373-376. December 17.

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