Abstract Submitted
for the GEC11 Meeting of
The American Physical Society

Time resolved ICCD images of an atmospheric pressure plasma jet[1] NEVENA PUAC, DEJAN MALETIC, SASA LAZOVIC, GORDANA MALOVIC, Institute of Physics, University of Belgrade, Serbia, ANTONIJE DJORDJEVIC, Faculty of Electrical Engineering, University of Belgrade, Serbia, ZORAN LJ. PETROVIC, Institute of Physics, University of Belgrade, Serbia — Plasma bullet is a relatively new plasma source with a large field of potential applications, from biomedical to material processing and surface activation. Our plasma bullet was made of Pyrex glass tube with two electrodes. The width of the electrodes and distance between them was 15 mm. The buffer gas was helium with a flow of 4 slm. High voltage probe was used to obtain voltage waveforms while current waveforms were measured at the resistor. Working frequency was 80 kHz and the power transmitted to the plasma was less than 5 W. Time-resolved images obtained by fast ICCD camera show that the plasma is not continuous, but consisted of small packages of plasma traveling at high speeds. The velocity of these packages outside of the tube is much larger (∼15 km/s) than the speed of the feed gas (∼7 m/s). On the other hand, the velocities in the zone of the electrodes are smaller (∼5 km/s) than the speed of the bullet, but still much higher than the speed of the flowing gas.

[1]Projects III41011 and ON171037, MES Republic of Serbia

Nevena Puac
Institute of Physics, University of Belgrade, Serbia

Date submitted: 16 Jul 2011 Electronic form version 1.4