

# **BIOMEDICAL APPLICATIONS AND RAYLEIGH MICROWAVE DIAGNOSTIC OF ATMOSPHERIC PLASMA JET**

A. Shashurin and M. Keidar

*Department of Mechanical and Aerospace Engineering,  
George Washington University, Washington, DC 20052, USA*

M. N. Shneider, A. Dogariu, R. B. Miles

*Department of Mechanical and Aerospace Engineering,  
Princeton University, Princeton, NJ 08544, USA*

M.A. Stepp

*George Washington University Medical School, Washington,  
DC 20052, USA*

Parameters of helium atmospheric plasma jet are measured by means of Rayleigh microwave scattering, fast photographing and measuring of jet currents. The absolute values of plasma density are determined from amplitude of output signal from microwave detecting system, visual observations of plasma jet size and proportionality coefficient determined using the calibration procedure accomplished using Rayleigh scatterers with known electrical properties. The scattering pattern from plasma jet was shown to be isotropic in plane perpendicular to jet direction indicating that plasma scatterer was close to Rayleigh regime. Streamer ("plasma bullet") propagating along with gas flow is generated immediately after the breakdown of the interelectrode gap. The post-streamer plasma column was detected on the way of streamer passing with plasma densities higher than  $10^{13} \text{ cm}^{-3}$  and decay times about 3-5 us.

We show the effects induced in living cells due to treatment with cold atmospheric plasma jet on the cellular and subcellular levels. Cellular level effects include the detachment of cells from the extracellular matrix and the decreasing migration velocity of cells, while the subcellular level effect is the reduction of cell surface integrin expression (receptors responsible for the cell adhesion to extracellular matrix, determining cellular shape and mobility).

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