

Abstract Submitted
for the GEC17 Meeting of
The American Physical Society

Simulation of a pulse-modulated radio-frequency atmospheric pressure glow discharge in Argon-Oxygen mixture¹ XUECHUN LI, HUI LIU, YOUNIAN WANG, Dalian University of Technology — The pulse-modulate radio-frequency atmospheric pressure glow discharges (RF- APGDs) plasmas can achieve low temperature RF APGDs with reduced power consumption. As a new discharge form, it has been investigated for applications in trials in cancer therapy, sterilization, air pollution control, etc . And it has been confirmed that ROS(Reactive oxygen species) play a key role in the processes. Thus, the characteristics of the ROS versus various discharge parameters may be a guidance for the industrial application. In this work, we use a fluid model to simulate the plasma characteristics for pulse-modulate RF-APGDs in argon-oxygen mixture. The influences of the duty cycle of pulse-modulated on the characteristics of discharge are studied. The evolution of electron density, electron energy and various reactive species versus oxygen admixture is discussed.

¹Work supported by the National Natural Science Foundation of China (No. 11175034)

Xuechun Li
Dalian University of Technology

Date submitted: 01 Jun 2017

Electronic form version 1.4