Abstract Submitted for the GEC13 Meeting of The American Physical Society

Development of A Pulse Radio-Frequency Plasma Jet¹ SHOU-GUO WANG, Institude of Plasma Physics Chinese Academy of Science, LING-LI ZHAO, JING-HUA YANG, Institute of Microelectronics Chinese Academy of Sciences — A small pulse plasma jet was driven by new developed radio-frequency (RF) power supply of 6.78 MHz. In contrast to the conventional RF 13.56 MHz atmospheric pressure plasma jet (APPJ), the power supply was highly simplified by eliminating the matching unit of the RF power supply and using a new circuit, moreover, a pulse controller was added to the circuit to produce the pulse discharge. The plasma jet was operated in a capacitively coupled manner and exhibited low power requirement of 5 W at atmospheric pressure using argon as a carrier gas. The pulse plasma plume temperature remained at less than 45 °C for an extended period of operation without using water to cool the electrodes. Optical emission spectrum measured at a wide range of 200–1000 nm indicated various excited species which were helpful in applying the plasma jet for surface sterilization to human skin or other sensitive materials.

¹Institude of Plasma Physics, Chinese Academy of Science, Hefei, China

Shou-Guo Wang Institude of Plasma Physics Chinese Academy of Science

Date submitted: 21 May 2013

Electronic form version 1.4