Abstract Submitted for the GEC16 Meeting of The American Physical Society

Effects Of Electrons and Heavy Particles On Halpha Emission In Pure H<sub>2</sub>O DC Discharge At High E/N (E-Electric Field, N-Gas Density)<sup>1</sup> ZORAN PETROVIC, VLADIMIR STOJANOVIC, NIKOLA SKORO, JELENA SIVOS, DRAGANA MARIC, GORDANA MALOVIC, Inst of Physics, University of Belgrade, P.O. Box 68 11080 Belgrade, Serbia — In this work we present results of Monte Carlo simulations for spatially resolved emission due to the transport of electrons and heavy particles (fast H, H<sup>+</sup>, OH<sup>+</sup>, H<sub>2</sub>O<sup>+</sup>, H<sub>3</sub>O<sup>+</sup>) in pure H<sub>2</sub>O for the conditions used in plasma assisted technologies. Monte Carlo technique, already used for similar discharges in nitrogen, argon and hydrogen is used to obtain spatially resolved Halpha emission in H<sub>2</sub>O. Data for anisotropic scattering of electrons, ions and fast neutrals are used to obtain contribution to Halpha spatially resolved emission. Agreement with experimental data for drift velocities for all charged particles and effective electron ionization for the conditions of moderate E/N allowed us to study production of heavy particles and subsequently spatial emission as a consequence of their transport.

<sup>1</sup>Acknowledgment to Ministry of Education, Science and Technology of Republic Serbia, Projects No. 171037 and 410011.

Zoran Petrovic Inst of Physics, University of Belgrade, P.O. Box 68 11080 Belgrade, Serbia

Date submitted: 09 Jun 2016

Electronic form version 1.4