

Abstract Submitted  
for the GEC13 Meeting of  
The American Physical Society

**Investigation of OH Radical Generation Rate in Liquid induced by Non-equilibrium Atmospheric Pressure Plasma Jet Irradiation<sup>1</sup>** TATSUO ISHIJIMA, YUKO IMAZAWA, KAZUAKI NINOMIYA, KENJI TAKAHASHI, YASUNORI TANAKA, YOSHIHIKO UESUGI, Kanazawa University — Non-equilibrium atmospheric pressure plasma jet (NAPPJ) is one of the convenient tools to supply reactive species to liquid under atmospheric pressure condition. Since a wide range of excitation frequencies is used to produce NAPPJs such as DC to microwave, it is necessary to obtain quantitative estimates of reactive species generation rate in liquid when the NAPPJ is irradiate to liquid surface. We have investigated hydroxyl radicals (OH) generation rate in liquid as one of a fundamental reactions using a chemical dosimetry technique based on a terephthalic acid (TA) when a pulsed 2.45 GHz microwave plasma jet (MWPJ) and low frequency (~20 kHz) plasma jet (LFPJ) source were used. Both MWPJ and LFPJ were produced at a He gas flow rate of less than 8 slm into a quartz tube. In order to evaluate the applicability of TA technique, the irradiation distance between the quartz nozzle edge and liquid surface was carefully investigated, taking into account linear dependence on irradiation time. As a result, we have found that OH generation rate of MWPJ was about 3 times lower than that of LFPJ in present operating conditions.

<sup>1</sup>This work is partly supported by Grant-in-Aid for Scientific Research on Innovative Areas “Plasma-nano interfaces.”

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Date submitted: 14 Jun 2013

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