

Abstract Submitted  
for the GEC15 Meeting of  
The American Physical Society

**Generation Mechanisms of Hydroxyl Radical and Hydrogen Peroxide in Plasma Generated over Solution** NOZOMI TAKEUCHI, NAOTO ISHIBASHI, DAICHI SHIRAKI, Tokyo Institute of Technology — Plasmas in contact with liquid have been used in many applications such as water treatment using OH radical, generation of hydrogen peroxide, and so on. The understanding of the generation mechanisms of OH radical and hydrogen peroxide is necessary to improve the time and energy efficiencies in these applications. In this study, plasma generated over a solution was used to investigate the mechanisms. A needle electrode was placed 1 mm above a solution and DC or pulsed voltage was applied to the needle whereas the bottom of the solution was grounded. The concentrations of OH radical and hydrogen peroxide were measured while changing experimental conditions. It was revealed that one of the key mechanisms is OH radical generation in gas phase by dissociation of water molecule in the vicinity of the solution, and the other is OH radical generation in liquid phase followed by irradiation of positive ions to the solution.

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Date submitted: 11 Jun 2015

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