Abstract Submitted
for the GEC20 Meeting of
The American Physical Society

Roles of Plasma-generated Reactive Species in Amino Acids Modification SHOTA SASAKI, MAHO YANAGISAWA, KEISUKE TAKASHIMA, TOSHIRO KANEKO, Graduate School of Engineering, Tohoku University, INTERDISCIPLINARY RESEARCH CENTER FOR NON-EQUILIBRIUM PLASMA (IRCNP) TEAM — Non-equilibrium atmospheric-pressure plasma (APP) has recently emerged as a novel tool in medicine and agriculture. Despite the promising potential of breakthrough applications using non-equilibrium APP, key species and action mechanisms remain unclear in most cases. One of the reasons is due to a lack of fundamental experiment on the interaction of plasma-generated reactive species with biomolecules such as proteins (peptide, amino acids), phospholipids, and enzymes. In this study, we focused on the interaction of APP with several standard amino acids such as tyrosine and have analyzed plasma-generated reactive species and amino-acid derivatives. In particular, composition of tyrosine derivatives generated by APP exposure strongly depended on reactive species which were transferred into solution. In the presentation, transports of reactive species from the gas phase to the liquid phase and reaction processes of the liquid-phase reactive species will be discussed.

Shota Sasaki
Graduate School of Engineering, Tohoku University

Date submitted: 10 Jun 2020 Electronic form version 1.4