

# CAMT Seminar

## “Gliding Arc with Side Gas Inlet: Plasma Diagnostics and Application in Polymer Treatment”

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Date: 7 February, 2019 (Thu) 11:00-12:00  
Location: Main Conference Room (1st floor), Bldg. A12  
Center for Atomic and Molecular Technologies (CAMT)  
(A12 棟 1 階会議室)

### Abstract

Non-thermal atmospheric pressure plasma jets represent a simple technology for the modification of material nanostructure and surface chemistry. They can be applied to polymers aiming at improved adhesion of further coatings or adhesives or synthetic textiles to improved wettability and biocompatibility. We have investigated an industrial device based on gliding arc discharge working in air at 50 Hz. The novelty of our set-up consists in the addition of an extra gas from the side, i.e. into the region of non-thermal gliding-arc plasma filaments. This set-up was optimized “*in silico*” with the help of gas dynamics simulations and investigated experimentally by plasma diagnostics (optical emission spectroscopy and fast camera imaging) and analyses of plasma-treated polypropylene. The side addition of argon revealed an increased width and improved uniformity of the plasma treatment at higher treatment speeds. Addition of argon with vapours of chemical reactants enabled different modifications of polypropylene surface or deposition of functional thin films.

(Host: Satoshi Hamaguchi Ext:7913)