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Diagnostics of plasma-liquid interactions K. SASAKI, N. SHIRAI, Hokkaido Univ — The diagnostics of plasma-liquid interactions is a more difficult task than the diagnostics of conventional plasma-solid interaction. We adopted LIF spectroscopy to an atmospheric-pressure plasma in contact with solution, where we had to be careful about the spatial distributions of the collisional quenching and the rotational temperature. We also adopted LIF to the diagnostics of laser-induced plasmas in open atmosphere with $CaCl_2$ electrolyte droplets, by which we obtained the knowledge on the production process of Ca from the $CaCl_2$ solution. In addition, laser photodetachment was applied to a dc glow discharge, where the optogalvanic effect of the laser irradiation was detected by the transient change in the discharge current. The detection of plasma-induced short-lived species in liquid is a hard subject for plasma researchers. Various methods employing chemical probes are used in our community, but they have problems in the lack of spatiotemporal resolutions. We recently adopted the chemiluminescence of luminol to the detection of short-lived species in the liquid-side of plasma-liquid interaction. We observed a thin layer with blue chemiluminescence in the region just below the plasma irradiation (N. Shirai, Y. Matsuda, and K. Sasaki, APEX **11**, 026201 (2018)).

Koichi Sasaki
Hokkaido Univ

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