

Special Lecture

41st Lecture Meeting on Biomedicine in Fluid Science

Organizer: Institute of Fluid Science, Tohoku University

Sponsor: Tohoku Branch of the Japan Society of Mechanical Engineers, Tohoku Branch of the Institute of Electrostatics Japan

Date and time: February 17, 2023 (Fri.) 15:00 ~ 16:00

Venue: Online (Google Meet)

<https://meet.google.com/xnc-vhkr-qjr>

Lecturer: Yun-Chien Cheng (Associate Professor, Department of Mechanical Engineering, National Yang Ming Chiao Tung University, Taiwan (Visiting Associate Professor, Institute of Fluid Science, Tohoku University, Japan))

Title: Atmospheric-pressure Plasma for Medicine: Cancer therapy, RONS generation, deep learning analysis, and circuits

Abstract: In this talk I will share my work about the feasibility of applying plasma for cancer therapy (malignant pleural effusion and skin cancer) and the RONS effect on cells. To better the plasma system for treatment, I also developed circuits to enhance plasma intensity, used deep learning to monitor the plasma current, and investigated RONS effects on protein and mRNA. My work about plasma polymerized coating for biosensor fabrication will also be reported. The aerosol-assisted dielectric-barrier-discharge atmospheric-pressure plasma deposition involves depositing plasma-polymerized ethylene (ppE) with grafted hydroxyl functional groups and embedding the protein in the ppE in one step, making the protein entrapment faster than conventional methods and without using reagents.

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