Tohoku Univ. Technology

Plasma actuator that does not require a high-voltage power supply

Drive voltage 1/10! Multi-electrode plasma actuator that doesn't generate backflow or arc discharge

Overview

Plasma actuator is an element that generates airflow using the electric current force generated by the electrical discharge. It is attracting attention as the next generation of airflow control device because it can actively control the flow with a simple configuration that does not use moving parts.

However, the conventional plasma actuator needs a large quantity of high-voltage power supply because it requires a drive voltage of over 10000V. The development of multi-electrode plasma actuator with multiple elements lined up for low-voltage drive has been done, but it has not yet been put to a real practical use due to a number of issues, such as arc discharge between multiple electrodes and interference between electrodes that causes electric current force in the opposite direction of the main flow, which reduces performance.

This invention is about a multi-electrode plasma actuator that can prevent arc discharge between electrodes and that do not generate backflow. Unlike conventional method, it is possible to reduce the driving voltage of the plasma actuator to a few hundred volts in principle because the performance is improved by increasing the number of electrodes.

Product Application

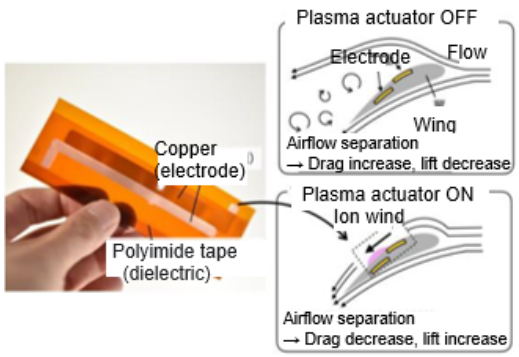
Since the control of airflow is expected to reduce the frictional resistance and noise, it can be applied to following:

- Installation on aircraft, automobiles, railroad vehicles
- Installation on turbine generator, gas turbine

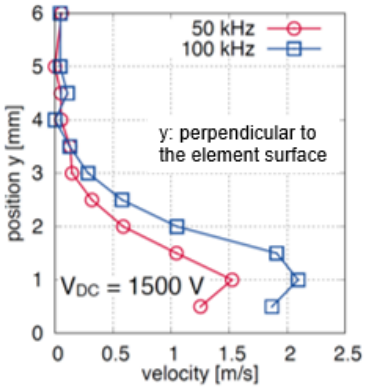
IP Data

IP No.	:	US10842013 (JP patent application exists)
Inventor	:	SATO Shintaro, OHNISHI Naofumi
Admin No.	:	T18-069

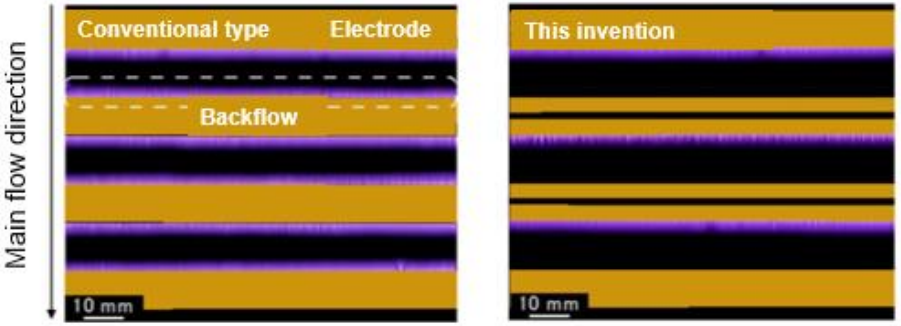
Airflow separation can be controlled by attaching flexible elements



Drive voltage is about 1/10 of conventional type



Backflow occurs in the conventional type, but not in the present invention



※Since the present invention enables element formation with flexible materials, even if the surface of above installation target is curved, the performance can be improved simply by attaching it.

Contact

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