2015 Annual Meeting of The Institute of Electrostatics Japan
Tokyo Metropolitan University
September 24-25, 2015

25pC-1

September 25th (Fri.), <14:00-15:15>
Room 3

Development of volume resistivity sensor using corona charging

○Yuki YOSHIDA*, Toshiyuki SUGIMOTO*,Nobuo

Yamagata University*,KASUGA DENKI. INC. **

Abstract:

Although there is a pencil scratch hardness test to check cure degree of painted film, the painted surface will be destructed by the measurement. A noncontact type cure degree sensor has been developed using noncontact surface resistivity measurement method. The cure degree sensor can principally only apply for the paint on the insulating material. In this paper, the system was improved by changing corona charger so that the electrostatic potential at the charging spot can be measured. It was found that the surface potential of the painted layer on the grounded material was increased with the curing time.

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25pC-2

September 25th (Fri.), <14:00-15:15>
Room 3

Fundamental characterisitics of sheet stapler using are electrostatic force

Keisuke OZAWA

Yamagata University, KASUGA DENKI. INC.

Abstract:

Although there are many sheet products stuck by glue or adhesive material, it is very difficult to control mechanically adherence and removal. In this study, we proposed an electrostatic sheet stapler that can adhere and remove the sheet material by an electrostatic force. The sheet material is charged by the positive and negative corona charging using two needle and grid electrodes. It was found that the electrostatic sheet stapler can control adherence and removal force by the corona charging and charge elimination and that the withstanding weight is over than 30g.

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25pC-3

September 25th (Fri.), <14:00-15:15>
Room 3

Internal Observation of a Levitated Microdroplet Using Electrodynamic Balance

○Yudai SHIRATORI, Kenichi SHODA, Azuchi HARANO

Graduate School of Science and Technology, Gunma University

Abstract:

The electrodynamic balance (EDB), where single charged particle or droplet can be levitated in space over periods of hours, provides the opportunity for in situ observation of aerosol morphologies. Nevertheless, the previously developed EDB has not been able to image with high-resolution from the side view. Hence, we developed a novel EDB optimized for the visual access of an optical microscope. Using this EDB, the deliquescence and solidification behaviors of the inorganic salt droplet (NaBr) was clearly observed.

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25pC-4

September 25th (Fri.), <14:00-15:15>
Room 3

MEA Fabrication using Cone-jet Mode of Electrostatic Spray

○Masayuki EGASHIRA, Satoshi MIKAMI, Kodai YAMAOKA, Shota YAZAWA, Yusuke KUDO, Tetsuo MAKITA

Nihon University, Collage of Industrial Technology,Department of Electrical and Electronic Engineering

Abstract:

A direct methanol fuel cell (DMFC) is paid attention which is new generation portable power source. It is high cost. Because, DMFC requires a platinum to generate the power. Performance of DMFC is progress by increasing surface area of membrane electrode assembly (MEA). We have been studying about fabrication method of MEA by electrostatic spray. In this study, MEA of DMFC was fabricated by cone-jet mode of electrostatic spray.

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25pC-5

September 25th (Fri.), <14:00-15:15>
Room 3

Evaluation of charge elimination property of EFD ionizer

○Yuta GOTO, and Toshiyuki SUGIMOTO

Graduated School of Science and Engineering, Yamagata University

Abstract:

Ionizers are typically used for eliminating the static charge on targets. We have proposed an Electric Field Driven(EFD) ionizer which can supply ions by an electric field in order to eliminate target charge faster than typical air ionizer. In this paper, the charge elimination characteristic of EFD ionizer was investigated. The charge elimination speed was significantly increased with increasing needle voltage and decreasing the distance h between the ionizer and the target. Converted charge eliminate rate Y is linearly increased with time for smaller h.