

Proceedings of the 2011 ESA Annual Meeting on Electrostatics
June 14-16, 2011
Case Western Reserve University, Cleveland OH

General Chairs:

Daniel J. Lacks, Case Western Reserve University
R. Mohan Sankaran, Case Western Reserve University

Technical Chair:

Keith Forward, Massachusetts Institute of Technology

A. Plasma, Breakdown, and Discharge

- A1. **D. Mariotti.** [Interfacing Microplasmas and Microplasmas for Nanomaterials Interfaces](#)
- A2. **J. M. Crowley.** [The Fair-Weather Atmosphere as a Power Source](#)
- A3. **L. Levit, D. Beyer.** [Generating Air Ionization With No Contaminating Particles](#)
- A4. **Z. Bo, K. Yu, G. Lu,** S. Mao, J. Chen. [Nanoscale Discharge Electrodes for Greener Corona Discharges: Lower Inception Voltage and Minimized Ozone Emission](#)
- A5. **J. Wolff, L. Zhao.** [Low Voltage Transient Plasma Arc Deflection](#)
- A6. **A. K. M. M. H. Mazumder, F. C. Lai.** [Two-Stage Electrohydrodynamic Gas Pump in a Square Channel](#)

B. Measurement and Instrumentation

- B1. **M. A. Noras.** [Solid State Electric Field Sensor](#)
- B2. **R. Beleca, M. Abbod, W. Balachandran.** Bipolar Charge Measurement of Dipolar Spherical Particles Using Phase Doppler Anemometry
- B3. **P. Agoramurthy, L. Campana, R. Sundararajan.** [Tumor Electric Field Distribution Studies using Various Electrode Configurations](#)
- B4. **K. Sakai.** [A Simple Experiment Result that Confirmed Asymmetric Electrostatic Force](#)
- B5. **F. Zypman.** [Particle Electrostatic Interactions in Liquids](#)

C. Flows, Forces and Fields

- C1. **N. Renno.** [A New Approach to ESD/EOS Protection](#)
- C2. **A. Gad, S. Jayaram.** [Electrode Material Migration during Pulsed Electric Fields \(PEF\) Treatment](#)
- C3. **I. Pathak.** [A Generalization of Gauss's Theorem in Electrostatics](#)
- C4. **G. Jadhav.** [On Electric Field Produced by a Steady Current of Magnetic Monopoles](#)
- C5 **C. Buhler.** Propellantless Propulsion: The conversion of linear field momentum to mechanical momentum

D. Particle Flow and Charging

- D1. **M. K. Mazumder, M. N. Horenstein, J. Stark, R. Sumner, P. Girouard, O. Sadler, K. A. Gopalkrishnan.** [Electrostatic Charging of Particles on Electrodynamic Screens by Low Frequency Electric and Dielectrophoretic Excitations](#)
- D2. **N. Farnoosh, K. Adamiak, G. S. P. Castle.** [Performance of a Spiked Electrode-Plate Precipitator for Collecting Submicron Dust Particles](#)
- D3. **M. Bilici, L. Dascalescu, O. Fati, F. Rahou, M. Miloudi and A Samuila.** [Experimental Modeling of the Tribo-aero-electrostatic Separation of Mixed Granular Plastics](#)

E. Electroporation and Electrospinning

- E1. **M.-J. Hsieh, T. Salameh, I. Camarillo, R. Sundararajan.** [Irreversible Electroporation Effects: A Drug-Free Treatment for Cancer](#)
- E2. **C. J. Angamma, S. H. Jayaram.** [A Theoretical Understanding of the Physical Mechanisms of Electrospinning](#)

- E3. **M. Gevelber, and X. Yan.** [Process Dynamics and Control Analysis for Electrospinning Nanofibers](#)
E4. **K. M. Forward, G. C. Rutledge.** [Free Surface Electrospinning from a Wire Electrode](#)

F. Material Applications

- F1. **S. Barringer, K. Marthina.** [Confectionary coating using an electrohydrodynamic system](#)
F2. **A. Ieta, C. Wahl, D. Quill, J. Primrose and J. Moody.** [Electrospray Patterns of Oil-Based Ferro-Fluids](#)
F3. **S. W. Lee, R. M. Sankaran.** [Plasma Electrochemical Reduction for Nanomaterial Synthesis and Assembly](#)

H. Triboelectrification I

- H1. **C. Liu, and A. Bard.** [Electrostatic Electrochemistry with Polymers Charged by Contact Electrification](#)
H2. **I. Bhattacharyya, S. Dorsey, G. E. Ewing, M. F. Jarrold.** [Mechanism of Contact Charging of Silica](#)
H3. **B. Baytekin, H. T. Baytekin, J. T. Incorvati, B. A. Grzybowski.** [Chemical Reactions with Contact Electrified Surfaces](#)
H4. **S. Piperno, H. Cohen, T. Bendikov, M. Lahav, I. Lubomirsky.** [Comments on the Concept of Cryptoelectrons on Dielectric Surfaces.](#)

I. Triboelectrification II

- I1. **P. Santos, T. R. D. Ducati, L. B. S. Balestrin, F. Galembeck.** [Water with Excess Electric Charge](#)
I2. **S. Waitukaitis, G. Castillo, E. Vidal.** [Direct Measurement of Size Dependent Charging in Chemically Identical Grains](#)
I3. **T. Shinbrot.** Granular Electrostatics in Industry and Nature
I4. **H. T. Baytekin, B. Baytekin, A. Z. Patashinski, B. A. Grzybowski.** [Material Transfer in Contact Electrification](#)

J. Triboelectrification III

- J1. **S. Friedle, P. Gumbley, and S. W. Thomas III.** [Light-Induced Modulation of Contact Electrification with Reactive Polymers](#)
J2. **B. Baytekin, H. T. Baytekin, S. Soh, B. A. Grzybowski.** [Was Thales Right? Role of Water in Contact Electrification](#)
J3. **M. Sow, D. J. Lacks, R. M. Sankaran.** Effects of Stress on Triboelectric Charging

K. Electrohydrodynamics

- K1. **L. Koziell, L. Zhao.** [Experimental Studies of EHD Lifters](#)
K2. **S. Balagopal, D. B. Go.** [Counter-flow Ionic Winds for Localized Hot Spot Cooling](#)
K3. **A. K. M. M. H. Mazumder, X. B. Zhao, F. C. Lai.** [Effects of Grounded Electrodes Size on the Performance of EHD Gas Pump in a Square Channel](#)
K4. **S. R. Mahmoudi, K. Adamiak, G.S.P. Castle.** [Electrohydrodynamic Single-phase Convection Heat Transfer Enhancement Techniques: Direct ionic wind and Vortex induction](#)

Session L. Electrostatics at surfaces

- L1. **H. T. Baytekin, A. I. Patashinski, M. Branicki, B. Baytekin, B. A. Grzybowski.** [The Mosaic of Surface Charge in Contact Electrification](#)
L2. **J. C. Angus, V. Chakrapani.** [Electrochemically Mediated Charge Transfer to Solids in Air](#)

- L3. **K. Robinson.** [Improved Measurement of the Apparent and Steady-State DC Surface Resistivity of Sheets and Films](#)
- L4. **M. W. Williams.** [Mechanisms of Triboelectric Charging of Insulators, a Coherent Scenario](#)
- L5. **M. N. Horenstein, M. Mazumder, R. Sumner, J. Stark and O. Saddar.** [Modeling of Trajectories in an Electrodynamic Screen for Obtaining Maximum Particle Removal Efficiency](#)

N. Biological and Medical Applications

- N1. **J. Leary.** [Electrostatic Interactions of Nanoparticles with Cells for Drug/Gene Delivery](#)
- N2. **W. M. Arnold.** [Microfluidic Implementation of Electrophoretic Analysis, Using Electrokinetic Injection of the Sample](#)
- N3. **S. M. Lyons, M. A. Harrison and S. E. Law.** [Sanitizing Food Handling Surfaces by Electrostatically Deposited Antimicrobial Sprays](#)
- N4. **R. Sundararajan, R. Rajendran, S. Shahid, S. Kanagaraj, S. Radhakrishnan, P. Kathirvel, V. Sundaresan, V. K. Udayakumar, R. Ramachandran, A. Natarajan and K. Sankaranarayanan.** [Effect of Irreversible Electroporation on Anti-Proliferation Control of Fibroblasts](#)

O. Atmospheric Applications

- O1. **G. Schmieg.** Review of Hazards of Static when around Flammable Gases
- O2. **A. R. Akande, M. Sow, A. Zimmerman, D. J. Lacks, R. M. Sankaran.** [Role of polarization and charge on the levitation of a single particle in an electric field](#)
- O3. **I. Pathak.** [A New Consideration in Elementary Electrostatics](#)