

Electrostatics
Society of America



2010 ANNUAL MEETING OF THE ELECTROSTATICS SOCIETY OF AMERICA

June 22-24, 2010

University of North Carolina, Charlotte, NC, USA

General Chair: Maciej Noras, University of North Carolina, Charlotte

Technical Chair: Daniel J. Lacks, Case Western Reserve University

Tuesday, June 22

11:00 AM – 1:00 PM	Welcome Reception, with Lunch
1:10 PM – 1:20 PM	President's Welcome
1:20 PM – 3:00 PM	Session A. Atmospheric and Space Applications I
3:00 PM – 3:30 PM	Coffee Break
3:30 PM – 4:50 PM	Session B. Materials Processing
5:00 PM – 6:00 PM	ESA Governing Board Meeting

Wednesday, June 23

8:10 AM – 9:50 AM	Session C. Materials I
9:50 AM – 10:20 AM	Coffee Break
10:20 AM – 11:40 AM	Session D. Atmospheric and Space Applications II
11:40 AM – noon	Session E. Special Before-Lunch Lecture
noon – 1:30 PM	Lunch
1:30 PM – 3:10 PM	Session F. Liquids and flows
3:10 PM – 3:40 PM	Coffee Break
3:40 PM – 5:20 PM	Session G. Energy

Thursday, June 24

8:10 AM – 9:30 AM	Session H. Materials II
9:30 AM – 10:00 AM	Coffee Break
10:00 AM – 11:40 AM	Session I. Biological and Medical Applications
11:40 AM – noon	Session J. Special Before-Lunch Lecture
noon – 1:30 PM	Lunch
1:30 PM – 2:50 PM	Session K. Forces and Fields
2:50 PM – 3:20 PM	Coffee Break
3:20 PM – 4:20 PM	Session L. Breakdown and Discharge
6:00 PM – 7:00 PM	Banquet Reception
7:00 PM – 10:00 PM	Banquet, with speaker Glenn Schmieg

Session A. Atmospheric and Space Applications I

Tuesday, June 22, 1:20 PM

Session Chair: D. J. Lacks, Case Western Reserve University

- 1:20-2:00 A1 Keynote Lecture: Gregory T. Delory.** University of California, Berkeley
Electrical Phenomena on the Moon and Mars
- 2:00-2:20 A2 Michael D. Hogue.** NASA, Kennedy Space Center
Triboelectrification of Granular Matter as a Function of Particle Count
- 2:20-2:40 A3 Hee Kyu Lee.** Bucheon University (Korea)
Experimental Evaluation of Odor Treatment for discharge plasma by using ceramic tube
- 2:40-3:00 A4 Niloofar Farnoosh, K. Adamiak, G. S. P. Castle.** University of Western Ontario
3-D Numerical Simulation of Particle Concentration Effect on a Single-Wire ESP Performance for Collecting Poly-dispersed Particles

Session B. Materials Processing

Tuesday, June 22, 3:30 PM

Session Chair: C. I. Calle, NASA, Kennedy Space Center

- 3:30-4:10 B1 Keynote Lecture: Keith A. Forward*, Gregory C. Rutledge.** MIT
Free Surface Electrospinning
- 4:10-4:30 B2 Maija Nyström, Matti Murtomaa, Jarno Salonen.** University of Turku
Fabrication of amorphous pharmaceutical materials by electro spraying into reduced pressure
- 4:30-4:50 B3 Adrian Ieta, Joshua Primrose, Dennis Quill, Marius Chirita, Samuel Allen.**
State University of New York at Oswego
Electrospray Onset Study of Water-Ethanol Mixtures

Session C. Materials I

Wednesday, June 23, 8:10 AM

Session Chair: L. Zhao, Gannon University

- 8:10-8:30 C1 Hartmut Berndt.** B.E.STAT European ESD Competence Centre
Electrostatic discharge (ESD) – Sources of electrostatic charges in a production line (smt)
- 8:30-8:50 C2 Adekunle Rufus Akande.** University of Botswana
The electrification of polymers by metals through repeated non-sliding and sliding mode of contact
- 8:50-9:10 C3 Shanshan Bian, Chitral J. Angamma, Shesha H. Jayaram.** University of Western Ontario
Use of Electrospinning to Improve the Dispersion of Inorganic Nanofillers in Silicone Rubber
- 9:10-9:30 C4 Richard Pham, Keith M. Forward, R. Craig Virnelson, R. Mohan Sankaran, Daniel J. Lacks.**
Case Western Reserve University
Triboelectric charging of identical materials by asymmetric rubbing
- 9:30-9:50 C5 Carly Dykstra, Therese Salameh, Ignacio Camarillo, Funian Xiao, Raji Sundararajan**
Purdue University
Enhanced Doxorubicin Uptake in Malignant Breast Cells using Electrical Pulses

Session D. Atmospheric and Space Applications II

Wednesday, June 23, 10:20 AM

Session Chair: M. Sow, Case Western Reserve University

- 10:20-10:40 D1 Carlos I. Calle, C.D. Immer, J. Ferreira, M.D. Hogue, A. Chen, C.R. Buhler, S.J. Snyder, N. Vansuetendael.** NASA, Kennedy Space Center
Integration of the Electrodynamical Dust Shield on a Lunar Habitat Demonstration Unit
- 10:40-11:00 D2 cancelled**
- 11:00-11:20 D3 Lucian Dascalescu, Marius Plopeanu, Belaid Tabti, Angela Antoniu, Laurentiu-Marius Dumitran, Petru V. Notingher.** CNRS-University of Poitiers-ENSMA
Corona Charging of Composite Non-Woven Media for Air Filtration
- 11:20-11:40 D4 Dixitbhai Patel, Lin Zhao.** Gannon University
Active Disturbance Rejection Control of Doubly-Fed Induction Generator during Voltage Dip

Session E. Special Before-Lunch Lecture I

Wednesday, June 23, 11:40 AM

Session Chair: D. J. Lacks, Case Western Reserve University

- 11:40-noon E1 Mark N. Horenstein.** Boston University
What's in a Name? Physical Units and the Unsung Heroes of Electrostatics

Session F. Liquids and flows

Wednesday, June 23, 1:30 PM

Session Chair: K. M. Forward, MIT

- 1:30-2:10 F1 Keynote Lecture: F. Kremer*, J. R. Sangoro, A. Serghei, C. Iacob, J. Kärger.**
University of Leipzig
Glassy dynamics, charge transport and electrode-polarisation in ionic liquids
- 2:10-2:30 F2 Petr Cervenka, Jiri Hrdlicka, Michal Pribyl, Dalimil Snita.**
Institute of Chemical Technology, Prague
Study on Faradaic and Coulombic interactions at microelectrodes utilized in AC electroosmotic micropumps
- 2:30-2:50 F3 J. Zhang, F. C. Lai.** University of Oklahoma
Effect of Emitting Electrode Number on the Performance of EHD Gad Pump in a Rectangular Channel
- 2:50-3:10 F4 Rakshit Tirumala, David B. Go.** University of Notre Dame
The Assisted Corona Discharge: Multi-Electrode Configurations and the Effects on EHD Flows

Session G. Energy

Wednesday, June 23, 3:40 PM

Session Chair: A. R. Akande, University of Botswana

- 3:40-4:00 G1 E. Rehmi Post, Kit Waal.** MIT, Asteism, Inc.
Electrostatic Power Harvesting in Textiles
- 4:00-4:20 G2 Kiran K Chedella, Lin Zhao, Zhihao Zhang.** Gannon University, UTC Power
Modeling of a Small Stand-Alone AC System with the Dynamic Models of Fuel Cells and Solar Panels
- 4:20-4:40 G3 Michael Reznikov.** Physical Optics Corporation
Electrostatic Swing Energy Harvester
- 4:40-5:00 G4 Katsuo Sakai.** Electrostatic Generator Research Center
Electrostatic force that acts on non-sphere shape charged conductors
- 5:00-5:20 G5 Jeffrey R. Alston, Jordan C. Poler.** UNC-Charlotte
Electrostatic Binding Studies of dinuclear Ruthenium based Supramolecular Scaffolds

Session H. Materials II

Thursday, June 24, 8:10 AM

Session Chair: M. Murtomaa, University of Turku

- 8:10-8:30 H1 Michael W. Forney, Jordan C. Poler.** UNC-Charlotte
Carbon nanotube based nanoelectromechanical actuators
- 8:30-8:50 H2 R. Baba, C. J. Angamma, S. H. Jayaram, L. T. Lim.**
University of Waterloo, University of Guelph
Electrospinning of Alginate and Poly-ethylene Oxide Blends Using Pulsed Electric Fields to Fabricate Chopped Nanofibres
- 8:50-9:10 H3 Mamadou Sow, Daniel J. Lacks, R. Mohan Sankaran.** Case Western Reserve University
Effects of material stress on triboelectric charging
- 9:10-9:30 H4 N. Toljic, K. Adamiak, G. S. P. Castle.** University of Western Ontario
Three-Dimensional Numerical Studies on the Effect of the Particle Charge to Mass Ratio Distribution in the Electrostatic Coating Process

Session I. Biological and Medical Applications

Thursday, June 24, 10:00 AM

Session Chair: R. J. Prance, University of Sussex

- 10:00-10:40 I1 Keynote Lecture: W. Michael Arnold.**
MacDiarmid Institute at Industrial Research Limited
Dielectrophoretic Cell Separation: Some Hints and Kinks
- 10:40-11:00 I2 Jorma Roine, Matti Murtomaa, Jarno Salonen.** University of Turku
Electroencapsulation of Mesoporous Silicon Particles for Controlled Oral Drug Delivery
- 11:00-11:20 I3 K. Sankaranarayanan, R. P. Ramachandran, M. S. Kumar, V. M. Kumar, S. Vignesh, V. Malini, J. C. M. Renny, S. Guhathakurta, K.M. Cherian, A. Natarajan, R. Sundararajan.**
Frontier Lifeline, B.S. Abdur Rahman University, Stanford Medical School, Purdue University
Electro-Molecular Therapy using Adult Mesenchymal Stem Cells
- 11:20-11:40 I4 Radu Beleca, Maysam Abbod, Wamadeva Balachandran.** Brunel University
Electrostatic Properties of DPI Dispensed Drug Aerosols in a Human Upper Airway Model

Session J. Special Before-Lunch Lecture II

Thursday, June 24, 11:40 AM

Session Chair: D. J. Lacks, Case Western Reserve University

- 11:40-noon J1 William Wayman.** Xerox
The Electrostatics of Petting a Cat

Session K. Forces and Fields

Thursday, June 24, 1:30 PM

Session Chair: D. J. Lacks, Case Western Reserve University

- 1:30-1:50 K1 P. Watson, R. J. Prance, S. T. Beardsmore-Rust, A. Aydin, H. Prance.**
University of Sussex
Imaging the microscopic properties of dielectrics via potential and charge
- 1:50-2:10 K2 Kelly Robinson.** Electrostatic Answers LLC
Electrostatic Force on a Dielectric Sphere near a Grounded Conducting Plate
- 2:10-2:30 K3 B. P. Seaver, A. E. Seaver.** Electrostatic Simulation Specialists
The Electric Field Produced by a Non-Conducting Web of Finite Size
- 2:30-2:50 K4 P. Sattari, G.S.P. Castle, K. Adamiak.** University of Western Ontario
Numerical Simulation of Trichel Pulses in a Negative Corona Discharge in Air

Session L. Breakdown and Discharge

Thursday, June 24, 3:20 PM

Session Chair: M. Hogue, NASA, Kennedy Space Center

- 3:20-3:40 L1 William D. Greason.** University of Western Ontario
Review of the Effect of ESD in MEMS
- 3:40-4:00 L2 Arnold Steinman.** Electronics Workshop, Trek Inc., Dangelmayer Associates
Evaluating the Effectiveness of a CDM ESD Control Program
- 4:00-4:20 L3 Chitral J. Angamma, Shesha H. Jayaram.** University of Waterloo
A Modified Electrospinning Method for Conductive and Insulating Materials