

Proceedings of the 2017 Annual Meeting of the Electrostatics Society of America

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University of Ottawa
[Technical Program](#)

Conference Chair: **Poupak Mehrani**, University of Ottawa, Canada
Technical Program Chair: **Shubho Banerjee**, Rhodes College, USA

A. Electrically-Induced Flows and Electrokinetics I

- A1. **H.-T. Charles Fan and Jorge Arinez**, [Full Vehicle Simulation of Electrostatic Paint Spray Simulation.](#)
- A2. **Feng C. Lai, I. W. Brindle, and F. C. Lai**, [Experimental Study of Corona Jet Produced by a Circular Tube Fitted with a Nozzle.](#)
- A3. **Katsuo Sakai**, [The third trial for the new electrostatic generator that is driven by Asymmetric electrostatic force.](#)
- A4. **V. Vivacqua, M. Ghadiri, A. M. Abdullah, A. Hassanpour, M. J. F. A. Al-Marri, B. Azzopardi, B. Hewakandamby, B. Kermani**, [Evaluation of a Novel Electrode Design for Separation of Water-in-Oil Dispersions by Electrocoalescence.](#)
- A5. **Hidemasa Takana and Koyo Saegus**, [Effect of Pulsed Voltage on Characteristics of Ionic Liquid Electropray.](#)
- A6. **Marius Blajan, Akihiko Ito, Jaroslav Kristof, and Kazuo Shimizu**, 3-D Numerical Simulation of Vortex Generator by Microplasma.

B. Contact Charging and Triboelectric Effects I

- B1. **Daniel J. Breton, Emily Asenath-Smith, and Nathan Lamie**, [Tribocharging and Materials Analysis of Firearm Propellants.](#)
- B2. **Tatsushi Matsuyama, Junichi Ida, and Hideo Yamamoto**, [A discussion on the maximum charge held by a single particle limited by gas discharge](#)
- B3. **Li Xie and Jun Zhou**, [Contact electrification of particles considering effect of relative humidity.](#)
- B4. **Mark Horenstein, Ryan Eriksen, and Malay Mazumder**, [Quasi Three-Phase Traveling Wave Generation for an Electrodynamical Screen Via Snake Electrode Pattern with No High-Voltage Crossover Connections.](#)
- B5. **Mizuki Shoyama and Shuji Matsusaka**, [Charging and Levitation of Small Particles by Mesh Electrode.](#)
- B6. **Matthew Ibbotson, E. Van Cleve, A. L. Collins, and C.G. Camara**, [Novel non-contact macroscopic triboelectric and tribological device.](#)

C. Biological and Medical Applications

- C1. **Philip Chi Lip Kwok**, [Electrostatics of pharmaceutical aerosols.](#)
- C2. **Emil Alexov**, [Modeling electrostatics in molecular biology: application to motor domain motion along microtubule.](#)

D. Gas Discharges and Microplasmas

- D1. **Chaoao Shi, Kazimierz Adamiak, and G. S. Peter Castle**, [Investigation of Characteristics of Dielectric Barrier Discharge Using a Numerical Model.](#)

D2. **VN. Manivannan, W. Balachandran, G. Agozzino, M. Jayamurthy, D. Brennen, and M. Abbod**, [NOx abatement form the exhaust of a diesel engine with non-thermal plasma and Ag/Al₂O₃ catalyst.](#)

D3. **Xiaozhou Shen, Xiaozhou Shen, Joseph Toth, R. Mohan Sankaran, Daniel Lacks**, [Direct Non-Oxidative Methane Conversion by Dielectric Barrier Discharge – a Modeling Study.](#)

E. Measurements and Instrumentation

E1. **Matti Murtomaa, Janne Peltonen, and Jarno Salonen**, [Development of a four electrode induction probe for charge measurements in fluidized beds.](#)

E2. **Michael Reznikov**, [A fixed surface potential probe with the swing capacitive electrometer compared to the vibrating Kelvin probe.](#)

E3. **Toshiyuki Sugimoto, Yuki Yoshida, and Nobuo Nomura**, [Estimation of paint thickness from measured surface potential charged by corona discharge.](#)

E4. **Janne Peltonen, Matti Murtomaa, Kelly Robinson, and Jarno Salonen**, [Measurements of binary powder mixture resistivities.](#)

E5. **Norimitsu Ichikawa**, [Measurement of electrostatically induced voltages in two metal boxes by using spark gap and electromagnetic wave sensor.](#)

F. Materials Synthesis Processing and Behavior

F1. **Rajesh Sharma, Samuel King, Mesut Yurukcu, and Tansel Karabacak**, [Multijunction thin film electrodes for photoelectrolysis.](#)

F2. **Mahdi Elghazali, Manoj Sachdev, and Ajoy Opal**, [Design methodology for ESD power supply clamps in advanced CMOS technologies.](#)

F3. **Mahdi Khanali and Shesha Jayaram**, [Use of dielectric spectroscopy in analysing the wood degradation due to weathering and ageing.](#)

G. Breakdown Phenomenon and Discharge

G1. **Elyse Rosenbaum**, [Electrostatic Discharge: A Reliability Threat to Integrated Circuits.](#)

G2. **Michael Hogue, Rachel Cox, Jaysen Mulligan, Jayanta Kapat, Kareem Ahmed, Jennifer Wilson, and Luz Marina Calle**, [Revision of Paschen's Law Relating to the ESD of Aerospace Vehicle Surfaces.](#)

G3. **Jiann-Lin Su and Tsrong-Yi Wen**, [Nanoparticle Collection Using Electrostatic Precipitator with Spike Corona Electrode.](#)

G4. **Zahirul Hasan Khan, George D. Bouzianas, Theodoros K. Koumbis, Vasileios N. Zagkanas**, [A Comparative Study of Experimental and Simulation Results of Sieving Electrostatic Precipitator.](#)

H. Safety and Hazards

H1. **Choi Kwangseok, Yuta Endo, Naoto Nogera, Teruo Suzuki**, [Electrostatic discharges inside storage silo during loading of polypropylene powders.](#)

H2. **Kelly Robinson**, [Solvent Exposure Compromises Some Antistatic Containers](#)

I. Contact Charging and Triboelectric Effects II

I1. **Joseph Toth and Matti Murtomaa**, [Triboelectric charging through particle-particle contact using acoustic levitation.](#)

- I2. **Gontran Richard, Abdelkader Nadjem, Karim Medles, Miloud Kachi, Thami Zeghloul, and Lucian Dascalescu**, [Tribocharging of PP and PVC granules after exposure to a dielectric barrier discharge \(DBD\). Effect of DBD exposure duration, voltage amplitude and frequency.](#)
- I3. **U. Zafar, M. Ali, F. Alfano, and M. Ghadiri**, [Evaluation of a New Method for Assessing Triboelectric Charging Propensity of Particles.](#)
- I4. **Xing Jin and Jeffrey S. Marshall**, [Contact Electrification of Suspended Particles in a Turbulent Fluid.](#)
- I5. **Ladislav Konopka, Simon Jantac, Jarmila Kucerova, and Juraj Kosek**, [Triboelectrification of Polymers.](#)
- I6. **Dylan Carter and Christine Hartzell**, [A Method for Measuring Charge Separation in Granular Mixtures in Vacuum.](#)

J. Atmospheric and Space Applications I

- J1. **Karen Aplin**, [Electrical processes in planetary atmospheres.](#)
- J2. **Mark Horenstein**, [Ultra-Sensitive Electric-Field Sensor for Underwater Object Detection.](#)
- J3. **Giles Harrison, Keri Nicoll, and Karen Aplin**, [Remote sensing of cloud base charge.](#)
- J4. **Jesus A. Dominguez, J. R. Phillips III, P. J. Mackey, M. D. Hogue, M. R. Johansen, R. E. Cox, and C. I. Calle**, [Comprehensive Modeling of Surface Dust Removal via Electrostatic and Dielectrophoretic Forces in Planetary Exploration Missions.](#)
- J5. **Shubho Banerjee, Blake Wilkerson, and Yi Song**, [The mathematics behind the close approach of two equal-sized charged spheres.](#)

K. Electrically-Induced Flows and Electrokinetics II

- K1. **Lei Yang and Jamal Seyed-Yagoobi**, [Liquid-Phase Flow Distribution Control in Meso-Scale with Directionally Reversed Electrohydrodynamic Conduction Pumping Configuration.](#)
- K2. **Janusz Podliński, Magdalena Danowska, Tomasz Izdebski, and Mirosław Dors**, [Electrohydrodynamic pump with bipolar corona discharge supplied by unipolar DC voltage.](#)
- K3. **Feng C. Lai, J. H. Lin, and S. C. Lin**, [Performance of an Electrohydrodynamic Gas Pump Fitted in a Nozzle.](#)
- K4. **Yoshio Higashiyama and Masafumi Kamada**, [Dehumidification by fine charged droplets ejected by corona discharge from a water droplet.](#)
- K5. **Keiichiro Yoshida, Michael J. Johnson, and David B. Go**, [Evaluation on ionic wind generated with a ring-shaped DBD device having an exhaust nozzle.](#)
- K6. **Farhana A. Khan, Stefan Andrei, A. K. M. Monayem H. Mazumder, Ramesh K. Guduru**, [Performance of Electrohydrodynamic Gas Pump in a Square Channel.](#)
- K7. **Michal Talmor, Lei Yang, and Jamal Seyed-Yagoobi**, [Numerical study of directional EHD conduction driven flow distribution control in small scales in the presence of external pressure loads.n.](#)

L. Electrically-Induced Flows and Electrokinetics III

- L1. **Maciej Noras and Alzarrio Rolle**, [Influence of electric and magnetic fields on behavior of electrosprays in an elevated pressure environment.](#)
- L2. **A. K. M. Monayem H. Mazumder, Farhana A. Khan, Ali Beheshti, Ramesh K. Guduru**, [Electrohydrodynamic Gas Pump in a Square Channel with Two-Stage Corona Wind Generator.](#)
- L3. **Vladimir Chirkov, Aleksandr Lashko, and Marina Reznikova**, [The investigation of the transition from electrical coalescence to non-coalescence of two water droplets.](#)

L4. **Rezaur Rahman, A. K. M. Monayem H. Mazumder, Jenny Zhou,** [Electrical Characteristics of Electrohydrodynamic Gas Pump in a Square Channel.](#)

M. Contact Charging and Triboelectric Effects III

M1. **Eli Van Cleve, M. Ibbotson, A. L. Collins, and C. G. Camara,** [Simulation of non-contact macroscopic triboelectric and tribological device](#)

M2. **Fahad Chowdhury, Alberto Passalacqua, Andrew Sowinski, Manjil Ray, and Poupak Mehrani,** [An Euler-Euler CFD Model for Gas-Solid Fluidized Beds Incorporating Electrostatic Charging due to Particle-Wall Collisions.](#)

M3. **Joshua Méndez-Haper, George McDonald, Josef Dufek, Mike Malaska, and Devon Burr,** [Electric Titan: A world molded by electrostatics.](#)

General Poster Session

P1. **Imed Eddine Achouri, Thami Zeghloul, Hamou Nouri, Abdelkader Mekhalef Benhafssa, Gontran Richard, Karim Medles, and Lucian Dascalescu,** [Tribo-aero-electrostatic separation of micronized waste plastics.](#)

P2. **Ahlem Ben Ab, Gontran Richard, Ana-Maria Delisor, Amar Tilmatine, Lucian Dascalescu, Thami Zeghloul,** [Modeling and Optimization of a Roll-type Tribo-electrostatic Separator for Granular Plastic Mixtures](#)

P3. **Chen Li, Zifan Wang, Xiaoyan Huang, Farzaneh Jalalinejada Kwangseok Choib, and Lifeng Zhanga,** [Characterization of Tribocharging Behaviour of Pharmaceutical Granules in a Turbulent Flow Tribocharger.](#)

P4. **Li Liangliang, Li Yipeng, Liu Quanzhen, Gao Xin, Sun Lifu,** [Experimental study on the electrostatic risk factors in the process of refueling and uploading meanwhile at petrol stations.](#)

P5. **He Meng,** [Electrostatic hazards of applying foam to protect exposed flammable product pools.](#)

P6. **W. Mike Arnold,** [The Cell Membrane Conductivity Disparity.](#)

P7. **Angela Antoniu,** [Electrical dipoles, extracellular signals, and surface measurements: an example.](#)

P8. **Khandakar Nusrat Islam and Mark Gilmore,** [Characterization of methods of surface charge removal for the reduction of electrostatic discharge events in explosive environments.](#)

P9. **Zerin Mahzabin Khan,** [Recent Innovations in Electromyography for Biomedical Applications: A Systematic Literature Review.](#)

P10. **Shubho Banerjee, Yi Song, and Blake Wilkerson,** [Electrostatics of equal-sized spheres at small separation.](#)

P11. **Faisal Aldawsari, Chitral Angamma, and Shesha Jayaram,** [Influence of Interphase on the Electrical Properties of Silicone Nanocomposites.](#)