

Proceedings of the 2019 Annual Meeting of the Electrostatics Society of America

June 10-12, 2019

Rochester, NY

Conference Chairs:

Kelly Robinson, Electrostatic Answer

Bill Vosteen, Monroe Electronics

Mark Zaretsky, Eastman Kodak

Technical Program Chairs:

Mark Zaretsky, Eastman Kodak

N.K. Kishore, Indian Institute of Technology Kharagpur

*Only the presenting author is listed below. The order of presentations in each session is not finalized at this point.

Monday, June 10th, 2019

Session A: Electrically-Induced Flows and Electrokinetics

A1. **EHD-Enhanced Drying of Porous Beads**, J. Harrison, F. C. Lai, University of Oklahoma

A2. **Gas Pumping Enhancement by a Two-Stage EHD Pump Operated at Uneven Applied Voltages**, A. K. M. Monayem H. Mazumder, Saginaw Valley State University

A3. **Experimental Study of Flexible Electrohydrodynamic Conduction Pumping**, Alexander Castaneda, Nathaniel O'Connor, Jamal Seyed-Yagoobi, Worcester Polytechnic Institute

A4. **A New Charge Injection Method of the Electric Field Driven Generator**, Katsuo Sakai, Electrostatic Generator Laboratory

A5. **Force on a Conducting Sphere on an Insulator Surface Immersed in Dielectric Liquids**, Xuwei Zhang, Texas A&M University Kingsville

Session B: Materials and Gas Discharges

B1. A Novel Vegetable Oil Based Dielectric Coolant and Investigations on its Performance under High Frequencies, V. Champa, A.N. Nagashree, B.V. Sumangala, G.R. Nagabhushana, B.M.S.College of Engineering

B2. Investigations on the Dielectric Properties of Vegetable Seed Oils and Solid Insulations as Composite Insulation at High Frequencies, A.N. Nagashree, V. Champa, B.V. Sumangala, G.R. Nagabhushana, B.M.S.College of Engineering

B3. Silicone Rubber Reinforced with Silica and Boron Nitride Particles as Potential Composite for Electrical Insulation Industry, Khadija Kanwal Khanum, Shesha Jayaram, University of Waterloo

B4. Study of Dielectric Properties of Silicone Composites at High Temperatures and Low Atmospheric Pressure, Khadija Kanwal Khanum, Arathi Mohan Sharma, Shesha Jayaram, University of Waterloo

Tuesday, June 11th, 2019

Session C: Biological and Medical Applications

C1. Keynote Speaker: Electroporation-Driven Gene Therapy for Lung Disease, David Dean, University of Rochester

C2. Turmeric Silver Nanoparticles with Electrical Pulses Against Triple Negative Breast Cancer Cells: An Insight into the Mechanism via Quantitative Proteomic Analysis, Lakshya Mittal, Ignacio G. Camarillo, S. Hemalatha, Samina Ashraf, Uma K. Aryal, V. Gowri Sree, Elisabetta Sieni, Paolo Sgarbossa, Arutselvan Natarajan, Raji Sundararajan, Purdue University

C3. Viability Study of Combined Treatment of Lycopene and Electrical Pulses on Prostate Cancer Cell Lines, Jeya Shree Thulasidas, Gowri Sree Varadarajan, Raji Sundararajan, College of Engineering, Anna University

C4. Analysis of Epileptic seizures using Electroencephalography Signals and High-Resolution Time-Frequency Based Features, N. Sivakumaran, P.A. Karthick, Raji Sundararajan, Nat'l. Inst. of Tech. Tiruchirappalli

C5. Multi Features and SVM based Seizure Prediction at Different Frequency Bands of EEG Signals, C. Sudalaimani, N. Sivakumaran, P. Devanand, S.R. Valsalam, Nat'l. Inst. of Tech. Tiruchirappalli.

C6. Pulse Electric Field Application of Beer Treatment and Analysis of Staleness during Aging, Suramya D F Mihindukulasuriya, Shesha H Jayaram, University of Waterloo.

C7. Automatic Selection of Best Focused Plane from a Stack of Pap Smear Images, NB Byju, G.Alexander, N. Sivakumaran, Raji Sundararajan, Purdue University.

C8. Enhanced Extraction of Bioactive Compounds from Natural Herbs by PEF Method, S. Poompavai, Gowri Sree Varadarajan, Raji Sundararajan, Anna University

Session D: Contact Charging and Triboelectric Effects

- D1. **Dynamic Electronic Excitation at Semiconductor-Based Frictional Contacts**, Jun Liu, [James Chen](#), Thomas Thundat, University of Buffalo
- D2. **Formation of Interfacial Dipole during Friction-Induced Electrification**, [James Chen](#), Mohamad Ibrahim Cheikh, Tyler J. Hieber, Zayd C. Leseman, University of Buffalo
- D3. **Unification of Observations of Charge Transfer Between Dielectric Solids of Identical Composition: Particulate Systems and Surfaces**, Isaac Greber, [John C. Angus](#), Case Western Reserve University
- D4. **Polarity Reversal and Charging Model for Triboelectrically Charged Silica Mixtures**, [Dylan Carter](#), Christine Hartzell, University of Maryland
- D5. **Triboelectric Charging of Asymmetrically Rubbed Quartz: Effects of Surface Chemistry**, [Siddharth Rajupet](#), Joseph R. Toth III, R. Mohan Sankaran, Daniel J. Lacks, Case Western Reserve University
- D6. **Electrostatic Charge Generation of Powder by Sieving**, [Tatsushi Matsuyama](#), Sakura Tashiro, Hidemi Itai, Junichi Ida, Soka University
- D7. **Electrostatic Generator Based on Nanostructured Carbon for Energy Harvesting Devices**, [Thiago A. L. Burgo](#), Fernando Galembeck, Letícia O. Ferreira, Leandra P. Santos, Kelly S. Moreira, Diana Lermen, Federal University of Santa Maria
- D8. **Study of the Electrostatic Adhesion Forces of Tritiated Tungsten Particles by Numerical Calculations**, Adriaan Riet, Qizan Chen, [Mamadou Sow](#), Daniel Lacks, Institut de Radioprotection et de Sûreté Nucléaire
- D9. **Light Controlled Static Charging and Static Charge Controlled Friction**, S.D.Cezan, H. Tarik Baytekin, [B. Baytekin](#), Bilkent University
- D10. **Feline Charging or The Electrostatics of Petting a Cat**, [William Wayman](#), Retired

Wednesday, June 12th, 2019

Session E: Atmospheric and Space Applications

- E1. **Keynote Speaker: First Flight of a Solid State Airplane**, [Steven Barrett](#), MIT
- E2. **Characteristics of Rotary Ionic Wind Systems at and below Atmospheric Pressure**, [A Ieta](#), M Chirita, N Curinga, SUNY Oswego
- E3. **Electrospraying for Aeroponics**, [Joel Malissa](#), Jerry Wang, Carlos Calle, J. Sid Clements, S. Edward Law, NASA
- E4. **Design and Production of Transparent Electrodynamical Screen Film with Copper Micro-wire Electrodes for Self-cleaning PV Modules**, Carolyn Elinger, Kevin O'Connor, [Mark Horenstein](#), Cristian Morales, Joshua Bone, Annie Bernard, Ryan Eriksen, Julius Yellowhair, Malay Mazumder, Boston University

E5. Indoor Air Quality Improvement: A Systematic Literature Review on Particulate Matter, and Indoor Air Toxics Control, Zahirul Hasan Khan, Md. Aynul Bari, Sanchita Paul, HRZ Research and Consultancy

E6. Evaluating the Effects of Airflow Recirculation on the Collection Efficiency of an Electrostatic Precipitator, Qing-Zhang Xue, Tsong-Yi Wen, National Taiwan University of Science and Technology

E7. Effects of External Field Control on Non-Uniformly Distributed Charged Particle Assembly, Tamal Sarkar, Brandon A. Kemp, Arkansas State University

Session F: Measurements and Instrumentation

F1. Ultra-Low Frequency and Magnitude Electric Field Detection Using Digital Signal Processing, Mark N. Horenstein, Frank Tranghese, Boston University

F2. Tamal Sarkar, Effects of external field control on non-uniformly distributed charged particle assembly.

Session G: Safety & Hazards

G1. Prevent Static Fires in Printing and Solvent Coating, Kelly Robinson, Electrostatic Answers

G2. On the Hyperbolic Law of the Charge Relaxation for Low-Conductivity Liquids, A. Ohsawa, National Institute of Occupational Safety & Health, Japan (JNIOSH)

G3. Experimental Study of Electrostatic Hazard Inside Scrubber Column Using Response Surface Methodology, Jingyao Wang, Yue Sun, Xiaodan Gaoa, M. Sam Mannana, Benjamin Wilhite, Texas A&M University

G4. Electrostatic Risk and Specification of Field and Voltage Limits for Insulating Web Materials, Jeremy Smallwood, Kelly Robinson, Electrostatic Answers

General Poster Session

P1. Construction of a Pulsed Electroacoustic Measurement Test Setup, Maciej A. Noras, UNC Charlotte

P2. Electrostatic Energy Dependence of Spectral Radiation Distribution of Spark Discharge in Air, Takashi Miura, National Institute of Occupational Safety and Health

P3. Experimental Study of the Electrical Conductivity for Petroleum Products, Li Liangliang, Li Yipeng, Liu Quanzhen, Sun Lifu, SINOPEC Research Institute of Safety Engineering

P4. Recent Advances in Electric Stimuli Responsive Hydrogels for Biomedical Applications: A Systematic Literature Review, Zerin Mahzabin Khan, Scott Verbridge, Virginia Polytechnic Institute and State University

P5. Impedance Spectroscopy Analysis of Electroporated, Inhomogeneous Potato Tissue, Gowri Sree Varadarajan, Jeya Shree Thulasidas, S. Poompavai, Lakshya Mittal, Elisabetta Sieni, Raji Sundararajan, College of Engineering, Anna University

P6. Effect of Electric Pulses for Liquid Food Processing on Their Characteristics, Lei Zhang, Jorge Estrada, Rajeswari Sundararajan, Giulio Aguliar, Juan Loo Kung, María Fernanda Muñoz Vidal, Julien Noel, UTEC - Universidad de Ingeniería y Tecnología

P7. Influence of the Beta Energy Decay Spectrum and Particle Size on Dust Specific Self-Charging Rate, Grégoire Dougniaux, Mamadou Sow, François Gensdarmes, Institut de Radioprotection et de Sécurité Nucléaire

P8. Effect of Cell Membrane Electroporation on the Water Mobility in Potato Tissue: NMR-MOUSE Evaluation, Paolo Sgarbossa, Ileana Menegazzo, Roberta Bertani, Stefano Mammi, Alessandra Bartolozzi, Elisabetta Sieni, Raji Sundararajan, Purdue Univ.