



2024 ANNUAL MEETING OF THE ELECTROSTATICS SOCIETY OF AMERICA

June 9-12, 2024

University of Ottawa, Ottawa, ON, Canada

General Chair: Poupak Mehrani, University of Ottawa, Canada

Technical Chairs: Craig Snoeyink and James Chen, University at Buffalo, USA

Sunday, June 9th

08:30 – 09:00

09:00 – 10:30

10:30 – 11:00

11:00 – 12:30

12:30 – 13:30

13:30 – 15:00

15:00 – 15:30

15:30 – 17:00

Sunday, June 9th

18:30 – 20:30

Monday, June 10th

07:30 – 08:30

08:30 – 09:00

09:00 – 10:00

10:00 – 10:30

10:30 – 12:00

12:00 – 13:00

13:10 – 14:30

14:30 – 15:00

15:00 – 16:20

17:00 – 19:00

Tuesday, June 11th

07:30 – 08:30

09:00 – 10:00

10:00 – 10:30

10:30 – 12:00

12:00 – 13:00

13:10 – 14:30

14:30 – 15:00

15:00 – 16:20

17:00 – 18:00

Wednesday, June 12th

07:30 – 08:30

09:00 – 10:00

10:00 – 10:30

10:30 – 12:00

12:00 – 13:00

13:10 – 14:30

14:30 – 15:00

15:00 – 16:20

Wednesday, June 12th

18:00 – 21:30

FSS Building, 120 University Private

Registration (1st floor lobby)

Tutorial Session A (room 1007)

Coffee Break (room 1005)

Tutorial Session B (room 1007)

Lunch (room 1005)

Tutorial Session C (room 1007)

Coffee Break (room 1005)

Tutorial Session D (room 1007)

90 University Private

Informal Reception (1st floor lounge)

FSS Building, 120 University Private

Breakfast (room 1005)

Opening Remarks (room 1007)

Keynote

Coffee Break (room 1005)

Session A: Contact Charging and Triboelectric Effects I (room 1007)

Lunch (room 1005)

Session B: Contact Charging and Triboelectric Effects II (room 1007)

Coffee Break (room 1005)

Session C: Contact Charging and Triboelectric Effects III (room 1007)

Poster Session (room 4004)

FSS Building, 120 University Private

Breakfast (room 5023)

Keynote (room 1007)

Coffee Break (room 5023)

Session A: Atmospheric and Space Applications I (room 1007)

Lunch (BBQ, outdoor)

Session B: Atmospheric and Space Applications II (room 1007)

Coffee Break (1005)

Session C: MEMS, Biological, and Electrostatic Applications and Challenges (room 1007)

ESA Board Meeting (room 1007)

FSS Building, 120 University Private

Breakfast (room 1005)

Keynote (room 1007)

Coffee Break (room 1005)

Session A: Electrostatic manipulation of particles and biological cells (room 1007)

Lunch (room 1005)

Session B: Electrohydrodynamics (room 1007)

Coffee Break (room 1005)

Session C: Electrohydrodynamics and Electrostatic Processes (room 1007)

DMS Building, 55 Laurier Ave E

Happy Hour & Banquet (room 12102)

Sunday, June 9th

08:30 - 09:00		Registration
Tutorial Session A		
09:00 - 10:30		Electrostatic fundamentals – Prof. Tatsushi Matsuyama, Soka University
Break		
10:30 - 11:00		Coffee Break
Tutorial Session B		
11:00 - 12:30		Electrostatic Instruments and Measurements – Prof. Maciej Noras, University of North Carolina at Charlotte
Lunch		
12:30 - 13:30		Lunch
Tutorial Session C		
13:30 - 15:00		Electrostatic Processes, Hazards, and Mitigations – Dr. Kelly Robinson, PE, Electrostatic Answers
Break		
15:00 - 15:30		Coffee Break
Tutorial Session D		
15:30 - 17:00		Electrical Breakdown, Gas Discharges, and Plasmas – Prof. Shesha Jayaram, University of Waterloo.
Reception		
18:30 - 20:30		Informal Reception

Notes:

Tutorial Sessions are only for registered participants.

Bolded Names – Student Speakers

Underlined Names - Speakers

Monday, June 10th

07:30 - 08:30	Continental Breakfast
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Opening Remarks

08:30 - 09:00	Opening Remarks, Poupak Mehrani and Craig Snoeyink
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Keynote Speaker

08:45 – 10:00	Joshua Rasera - <i>Electrostatic Innovations for Space Resource Utilisation: Advanced Techniques in Particle Separation</i>
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Break

10:00-10:30	Coffee Break
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Technical Session A - Contact charging and triboelectric effects – I

Session Chair – Simon Jantač, Physikalisch-Technische Bundesanstalt

10:30 – 10:50	<u>James R. Phillips III</u> , Jessica Schwend, David C. Lund, Krystal L. Acosta, Joseph R. Toth III, Aaron D.S. Olson, Jerry J. Wang, Charles R. Buhler, J. Sid Clements, Adrienne R. Dove - <i>Monodisperse Single-Material Granular Tribocharging Modeling and Experimental Validation</i> , NASA Kennedy Space Center
10:50 – 11:10	Jiangtian Hou , Xiaotao Bi, John R. Grace - - <i>Effect of fluidization time and gas properties on particle charging in gas-solids fluidized beds</i> , University of British Columbia
11:10 – 11:30	Juan Carlos Sobarzo , Scott Waitukaitis - <i>Spontaneous Self-Organization of Identical Materials into a Triboelectric Series</i> , Institute of Science and Technology Austria
11:30 – 11:50	<u>J. R. Middleton</u> , M. Ghadiri and A. J. Scott - <i>Triboelectric charging properties of the functional groups of common pharmaceutical materials using density functional theory calculations</i> . University of Leeds

Lunch

12:00 – 13:00	Lunch
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Technical Session B – Contact charging and triboelectric effects – II

Session Chair – John Szul - Univation Technologies, LLC

13:10 – 13:30	<u>Simon Jantač</u> , Holger Grosshans - <i>Triboelectrification of rough particles in turbulent flows</i> , Physikalisch-Technische Bundesanstalt
13:30 – 13:50	Erasmus S. Napolitano, <u>Francesca O. Alfano</u> , Francesco P. Di Maio, Alberto Di Renzo - <i>DEM-CFD coarse graining strategy for triboelectric charging in a fluidized bed riser</i> , University of Calabria
13:50 – 14:10	Nicolas Preud'homme, Eric Opsomer and <u>Geoffroy Lumay</u> - <i>Powder tribocharging: Measurement, DEM simulation with patchy particles and process optimization</i> , University of Liège (Belgium)
14:10 – 14:30	Maria Giordano , Francesca O. Alfano, Giovanni Iozzi, Francesco P. Di Maio, Alberto Di Renzo- <i>Numerical analysis of tribocharging and electrostatic behaviour of polarisable particles in fluidized beds</i> , University of Calabria

Break

14:30 – 15:00	Coffee Break
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Technical Session C - Contact charging and triboelectric effects – III

Session Chair – James Phillips, NASA Kennedy Space Center

15:00 – 15:20	John Szul - <i>Electrostatic Challenges in Gas Phase Polyethylene Production</i> , Univation
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		Technologies, LLC
15:20 – 15:40		Sklenářová J. , Pelcová J., Kosek, J. - <i>Experimental description of polyolefin particle morphology and its use in quantitative comparison of charging of differently produced samples</i> , University of Chemistry and Technology Prague
15:40 – 16:00		Mohsen Isaac Nimvari , Andrew Sowinski, Poupak Mehrani- <i>A Preliminary Study on the Influence of a Metallocene Catalyst on Triboelectrification in a Polyethylene Gas-Solid Fluidized bed</i> , University of Ottawa
16:00 – 16:20		Gizem Ozler , Holger Grosshans- <i>Influence of the flow pattern on electrostatic powder charging</i> , Physikalisch-Technische Bundesanstalt
16:20 – 16:40		Poupak Mehrani - <i>Utility of Argon as a Suppressant of Triboelectrification in Pressurized Gas-Solid Fluidized Beds</i>

Poster Presentation

17:00 – 19:00		Poster Presentation
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List of Posters

	P1	J.P. Nelson , and J.A. Rioussset- <i>Development of the Bench for Automated Measurements of Electrical Discharges (BeAMED)</i> . Embry-Riddle Aeronautical University
	P2	Ganapathy Subramanian M , Tolu Emiola-Sadiq, Lifeng Zhang, Venkatesh Meda - <i>Tribo-Electrostatic Separation Technique for the Dry Fractionation of Flours</i> , University of Saskatchewan
	P3	Siham Labiod, <u>Mohamed-Sofiane Bendilmi</u> , Khaled Daioui, Thami Zeghloul, Farida Tomasella and Lucien Dascalescu - <i>Improving the efficiency of tribo-electrostatic separation of granular plastic waste by mastering their moisture content</i> , Institut Pprime
	P4	O. Obukohwo (a) , A. Sowinski (a), P. Mehrani (a), H. Grosshans (b). - <i>The effect of discontinuous particle injection frequency on flow patterns in pneumatic conveying</i> , (a): Department of Chemical and Biological Engineering, University of Ottawa. Ottawa, Canada. (b): Physikalisch-Technische Bundesanstalt. Braunschweig, Germany.
	P5	Marius CHIRITA, <u>Adrian IETA</u> , Mircea NICOLAESCU, Marius Constantin CHIRITA MIHAILA, Virgil ROTARU- <i>Liftoff of a co-Planar Quad Ionic Thruster with Toroidal Collector</i> , SUNY Oswego
	P6	Chadi El Hamdouchi , Mohsen I. Nimvari, Poupak Mehrani - <i>Electrostatic Probe Signal Analysis for Application in Fluidized Beds</i> , University of Ottawa
	P7	<i>Adrian Ieta and Marius Chirita - Ionic Wind Characteristics in Synthetic Air</i> , SUNY Oswego
	P8	Jiří Perner , Simon Jantač, Jana Sklenářová, Jarmila Pelcová, Alexandr Zubov - <i>DEM model for triboelectrification of rough particles</i> , University of Chemistry and Technology, Prague
	P9	Likashmi Deosaran , Jack Gallagher, Marius Chirita, and Adrian Ieta - <i>Linear Emitter-Array Ionic Lifter</i> , SUNY Oswego
	P10	K. Rouagdia, A. Nadjem, L. Dascalescu, D. Aouimeur, M. S. Bendilmi, <u>T. Zeghloul</u> - <i>Experimental investigation of triboelectrification behavior of natural hair fibers</i> , Institut Pprime
	P11	<u>Kazimierz Adamiak</u> - <i>EHD flow in DBD micro-jet actuator. A numerical study</i> , Univ. of Western Ontario
	P12	Nesrine Amieur, Thami Zeghloul, <u>Mohamed- Sofiane Bendilmi</u> and Lucien Dascalescu - <i>Interpretation of the results of electrostatic potential and electric field measurements at the surface of non-planar bodies</i> , Institut Pprime
	P13	Graydon Oka , Poupak Mehrani, Adya Karthikeyan - <i>Impact of reduction in surface energy of polylactic acid on triboelectrification of PTFE</i> , University of Ottawa
	P14	Talha Syed , Nikhil Sridhar, Poupak Mehrani- <i>A preliminary study on usage of argon as a static reducer in polyethylene fluidized beds at elevated pressure and temperatures</i> , University of Ottawa

Tuesday, June 11th

07:30 – 08:30	Continental Breakfast
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Keynote Speaker

09:00 – 10:00	Elain Marie Petro - <i>Spacecraft Electrostatic Propulsion: Historical Overview and New Trends</i> , Cornell University
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Break

10:00-10:30	Coffee Break
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Technical Session A – Atmospheric and space applications

Session Chair – Monica Hooks, NASA Kennedy Space Center

10:30 – 10:50	<u>Joseph R. Toth III</u> , James R. Phillips III, Aaron D. S. Olson, Krystal L. Acosta, Jerry J. Wang, Charles R. Buhler - <i>Electrostatic Payloads in Space</i> , NASA Kennedy Space Center
10:50 – 11:10	<u>Krystal L. Acosta</u> , Joseph R. Toth, Jerry J. Wang, Aaron D. S. Olson, James R. Phillips, Charles R. Buhler - <i>Electrodynamic Dust Shield for Active Dust Mitigation of Thermal Radiators</i> , Electrostatics and Surface Physics Lab, NASA Kennedy Space Center
11:10 – 11:30	<u>Aaron Olson</u> , Charles Buhler, Joseph Toth, Krystal Acosta, Jerry Wang - <i>Concepts for Self-Cleaning Elastomer Seals for Lunar Surface Applications</i> , NASA Kennedy Space Center
11:30 – 11:50	<u>Charles Buhler</u> , Jerry Wang, James Phillips, Joseph Toth, Krystal Acosta, Aaron Olson, Monica Hooks - <i>Mitigating Electrostatics on the Moon</i> , NASA Kennedy Space Center

Lunch

12:00 – 13:00	Lunch
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Technical Session B – Atmospheric and space applications

Session Chair - Kelly Robinson, Electrostatic Answers

13:10 – 13:30	<u>Charles Buhler</u> , Joseph R. Toth, Krystal L. Acosta, Aaron D. Olson, James R. Phillips III, Charles R. Buhler - <i>The Phenomenon of p-Static Charging in Launch Vehicles</i> , Electrostatics and Surface Physics Lab NASA Kennedy Space Center
13:30 – 13:50	Narendra Nelli, Diana Francis, Ricardo Fonseca, Emmanuel Bosc, Gilles Bergametti, Olivier Masson, <u>Mamadou Sow</u> - <i>Contribution of the electric field on the resuspension of mineral dust potentially bearing radionuclides: experimental study in the Empty Quarter desert in the United Arab Emirates</i> , Institute for Radiation Protection and Nuclear Safety (IRSN)
13:50-14:10	<u>David Lund</u> - <i>Kinetic Simulations of Dust Grain Charging in Experimental Plasma Conditions</i> , NASA KSC/Bennett Aerospace

Break

14:30 – 15:00	Coffee Break
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Technical Session D – MEMS, Biological, and Electrostatic Applications and Challenges

Session Chair – Aaron Olson, NASA Kennedy Space Center

15:00 – 15:20	Kelly Robinson - <i>Electrostatic Ignition Risks When Filling Containers</i> , Electrostatic Answers
15:20 – 15:40	Yifei Chen, <u>Hongqiang Wang</u> - <i>Miniature electrostatic stacked film actuators for powerful robotic actuation</i> , Southern University Of Science And Technology
15:40 – 16:00	<u>Xiaolong Wen</u> , Guijie Wang, Lifang Ran- <i>Principle, sensitivity, and stability comparisons between micro-mechanical-electrical systems electrostatic sensor, vibrating capacitor, and electric field mill</i> , University of Science and Technology Beijing
16:00 – 16:20	<u>Imed-Eddine Achouri</u> , Thami Zeghloul, Karim Medles, Thomas Simonelli, Lucian Dascalescu - <i>Improving the efficiency of triboelectrostatic separation of textile fibers from shredded end-of-life hoses</i> , Institut Pprime

ESA Council Meeting

17:00 – 18:00		ESA Council Meeting
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Wednesday, June 12th

07:30 - 08:30		Continental Breakfast
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Keynote Speaker

09:00 – 10:00		Panel Discussion: <i>Careers in Electrostatics</i>
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Break

10:00-10:30		Coffee Break
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Technical Session A – Electrostatic manipulation of particles and biological cells

Session Chair - S.-C. Lin

10:30 – 10:50		<u>Craig Snoeyink</u> , Samira Safaripour – <i>Connections between Field Induced Condensation and Molecular Transport</i> , University at Buffalo
10:50 – 11:10		Roger Bolo , Myra Martel, Lifeng Zhang, Bernardo Predicala, Huiqing Guo, Brooke Thompson, Shelley Kirychuk- <i>Advanced Surface Decontamination using Engineered Water Nanostructures (EWNS) from Electro-nanospray Technology</i> , University of Saskatchewan
11:10 – 11:30		Sue Shi , Galien Grosjean, Scott Waitukaitis - <i>Electrostatic-Acoustic Assembly of Microspheres: Toward Granular Coulomb Crystals</i> , Institute of Science and Technology Austria
11:30 – 11:50		<u>Wei Pin Goh</u> , Poupak Mehrani, James Middleton, Saba Saifoori and Mojtaba Ghadiri - <i>Charge Mitigating Effect of ATMER 163 on Functionalised Glass Surfaces</i> , University of Leeds

Lunch

12:00 – 13:00		Lunch
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Technical Session B – Electrohydrodynamics

Session Chair – Craig Snoeyink

13:10 – 13:30		AKM Monayem Mazumder - <i>Experimental Study of a Corona Wind Generator</i> , Saginaw Valley State University
13:30 – 13:50		Alexander J. Castaneda , Jamal Yagoobi - <i>Oscillating Electrohydrodynamic Conduction Pumping - A Single-Phase Numerical Study</i> , Worcester Polytechnic Institute
13:50 – 14:10		S.-C. Lin, B.-L. Huang, and F. C. Lai - <i>Flow Induced by Electrodes Mounted on a Half Circumference of a Circular Tube</i> , University of Oklahoma
14:10 – 14:30		Adrian Ieta, Marius Chirita, Likashmi Deosaran , and Jack Gallagher - <i>New Electrode Designs for in-Atmosphere Ionic Lifters</i> , SUNY Oswego

Break

14:30 – 15:00		Coffee Break
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Technical Session D – Electrohydrodynamics and Electrostatic Processes

Session Chair - AKM Monayem Mazumder

15:00 – 15:20		S.-C. Lin, B.-L. Huang, and F. C. Lai- <i>Evaluation of EHD Swirl-Flow Generators</i> , University of Oklahoma
15:20 – 15:40		Lindsey H. Podlaski , Alexander J. Castaneda, Jamal Yagoobi - <i>Flexible Radial Electrohydrodynamic Conduction Pump Liquid Film Flow Boiling for Long-term Performance Testing</i> , Worcester Polytechnic Institute (WPI)
15:40 – 16:00		<u>Khaled Daioui</u> , Thami Zeghloul, Nils Perbet, and Lucien Dascalescu - <i>Improving the efficiency of a commercially free-fall tribo-electrostatic separator for flakes plastic</i> , Institut Pprime
16:00 – 16:20		Hakim Moulai, <u>Thami Zeghloul</u> , Nouredine Menad, Lucian Dascalescu- <i>Effect of electrode configuration on particle trajectory in a corona-electrostatic separator for a granular metallic mixture</i> , Institut Pprime

Student Award Announcement

16:20 – 16:45		Student Awards Announcement – Room 1007
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Happy Hour & Banquet

18:00 – 19:00		Happy Hour
19:00 – 21:30		Banquet Dinner, Awards Ceremony, Presentation and Demonstration

Thursday, June 13th

Laboratory Tour

09:30 – 11:30		University of Ottawa Electrostatic Laboratory Tour
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