Programme

Electrostatics 2023

4th – 7th September 2023, Brunel University, UK

Monday 4 September

08.00	*Registration*
08.40	**Welcome address**
	Session 1 - Non-thermal plasma
09.00	**BILL BRIGHT MEMORIAL LECTURE - Recent advances in application of non-thermal plasma for medicine, dentistry, environment & agriculture** Professor Wamadeva Balachandran, Brunel University, UK
10.00	**Analysis and comparison of the influence of the capacitive effect on the behavior and efficiency of a corona discharge under continuous and pulsed power supply modes** Raouti Driss, LGE Laboratory, Algeria
11.35	**Modelling and comparison of electric field distribution in single dielectric and double dielectric barrier discharge** Dr Mina Mortazavi, University of Bedfordshire, UK
10.40	*Coffee Break*
	Session 2 – Electrostatics in nature
11.00	**Exploring Electrical Signalling in Plants: Are Flowers Antennas?** Fraser Woodburn, University of Bristol, UK
11.20	**The vibrational behaviour of spider sensory hairs to prey-like electric fields** Liam O'Reilly, University of Bristol, UK
11.40	*Coffee Break*
	Session 3 – Planetary electrostatics
12.00	**Accurate values for electrostatic field enhancement by a hemispherically rounded cylindrical post (the "lightning rod effect") and applications in terrestrial electrostatics** Dr Richard Forbes, University of Surrey, UK
12.30	**Electrostatic modelling of the Groza-2 discharge sensor on the Venera missions to Venus** Professor Karen Aplin, University of Bristol, UK
12.50	**Lab-Based Martian Analogue Experiments Investigating Electric and Magnetic Fields of Dust Devils** David Reid, University of Bristol, UK
13.10	*Lunch*

	Session 4 – Atmospheric electrostatics I
14.30	**(Invited) Charge in non-thunderstorm clouds and fogs** Giles Harrison, University of Reading, UK
15.10	**The Effect of Fog on Atmospheric Electric Fields** Caleb Miller, University of Reading, UK
15.30	**Evaluation of a Point Discharge Sensor as an Atmospheric Electricity Instrument** Blair Mcginness, University of Reading, UK
15.50	*Coffee Break*
	Session 5 – Atmospheric electrostatics II
16.10	**Semi-Autonomous Terrestrial Robots for Atmospheric Electricity Measurement** Gjosse Zijlstra, University of Bristol, UK
16.30	**Examination of Initial Continuous Current during Upward Lightning** Gyorgy Kalecz, Budapest University of Technology and Economics, Hungary
16.50	**New results of applying the analogy with electrostatics to solve the problem of evaporation of a sessile drop with contact angle 135-180 degrees** Dr. Peter Lebedev-stepanov, FSRC "Crystallography and Photonics" RAS, Russian Federation
17.10 – 18.10	*Poster Session and Refreshments*
19.00 – 21.30	*BBQ – Brunel University*

Tuesday 5 September	
	Session 6 – Triboelectrification I.
08.40	**(Invited) Triboelectrification of Powder and Grains: Effect of Surface Functional Groups** Prof Mojtaba Ghadiri, University of Leeds, UK
09.20	**Investigating the triboelectric charging properties of the functional groups of common pharmaceutical materials using density functional theory calculations** James Middleton, University of Leeds, UK
09.40	**Electrostatic charge generation of powder by sieving** Prof Dr Tatsushi Matsuyama, Soka University, Japan
10.00	**Polarity switch of PMMA powder transported through a PMMA duct** Wenchao Xu, Physikalisch-technische Bundesanstalt, Germany
10.20	*Coffee Break*
	Session 7 – Triboelectrification II
10.40	**Single-Collision Statistics Reveal a Global Mechanism Driven by Sample History for Contact Electrification in Granular Media** Scott Waitukaitis, Institute of Science And Technology Austria, Austria

11.10	**Triboelectric charging of brominated Polyethylene (PE) granules treated by dielectric barrier discharge (DBD) in atmospheric air** Prof Lucian Dascalescu, University of Poitiers, France
11.30	**Flow reversal of particles in pneumatic conveying systems: A CFD study** Otome Obukohwo, University of Ottawa, Canada
	Session 8 – Modelling I
11.50	**(Invited) Recent Developments in the Methods and Applications of Electrostatic Theory** Elena Besley, University of Nottingham, UK
12.30	**Analytical and numerical modelling of the electrostatic behaviour of highly insulating materials in the time domain** Philippe Molinié, Université Paris-Saclay, France
12.50	*Lunch with Live Indian Music*
	Session 9 - Electrospinning & Modelling II
14.00	**(Invited) Influence of filler-polymer interface on the performance of nanocomposites** Prof Shesha Jayaram, University of Waterloo, Canada
14.40	**A theory for like-charge attraction of polarizable ions** Prof. Ho-Kei Chan, Harbin Institute Of Technology, China
15.00	**Charged particle dynamics in dry powder inhalers: Evidence of particle scavenging** Connor Williamson, University of Nottingham, UK
15.20	**Multipole components of electrostatic fields in complex electrode geometries** Ziga Brencic, Josef Stefan Institute, Slovenia
15.40	**ANNOUNCEMENT – ELECTROSTATICS 2025, Dr. Pedro Llovera-Segovia, EFCE Working Party Static Electricity in Industry**
15.45	*Coffee Break*
	Session 10 – Dielectrophoreses & Electrohydrodynamics
16.00	**Upscaling of dielectrophoretic separators using printed circuit boards** Jasper Giesler, Universität Bremen, Germany
16.20	**Multidimensional sorting of mixed microparticles in a mesh-based dielectrophoretic device** Laura Weirauch, University of Bremen, Germany
19.00 – 22.00	*Conference Dinner – Watersedge restaurant* *Address: The WatersEdge, Canal Cottages, Packet Boat Lane, Cowley, UB8 2JS (the walk will take around 20 minute, departure from The Hamilton Centre at 18.30.)*

Wednesday 6 September	
	Session 11 - Agriculture, industry and Healthcare I
09.00	**(Invited) Significant Research and Technology Landscape on Electrostatic Sprays for Agro-Food and Health Industry** Dr. Manoj Patel, CSIR-Central Scientific Instruments Organisation (CSIR-CSIO), India
09.40	**Elimination of Electrostatic Charges on Webs in Production Machines** Wolfgang Schubert, Ip3-leipzig Institute for Printing, Germany
10.00	**Particle removal performance of a novel ESP type air cleaning system for indoor air quality in a subway station** Hak Joon Kim, Korea Institute of Machinery and Materials, South Korea
10.20	*Coffee Break*
	Session 12 – Agriculture, industry & healthcare II
10.40	**(Invited) Hybrid electrostatic systems for gas cleaning** Anatol Jaworek, Polish Academy of Sciences, Poland
11.20	**Investigation of the separation of conductive and insulating objects on a labor-made electrostatic separator** Istvan Kiss, Budapest University of Technology and Economics, Hungary
11.40	**2D-MoS2 Nanosheets for Flexible Piezoelectric Nanogenerator** Dr Manoj Kumar Gupta, SIR-Advanced Materials and Processes Research Institute Bhopal, India
12.00	**Influence of Wettability and Geometry on Contact Electrification Between Insulators** Dr. Kai Sotthewes, University Of Twente, Netherlands
12.20	*Lunch*
	Session 13 – Safety & hazards
13.20	**(Invited) Solvay method of estimating the risk of electrostatic ignition** Simon Egan, Solvay, France
14.00	**Parameters Influencing Space Charge Density in Vessels by Spraying Water** Florian Baumann, Physikalisch-Technische Bundesanstalt, Germany
14.20	**A method of risk assessment for static ignitions** Dr. Atsushi Ohsawa, Tokyo Denki University, Japan
14.40	**Electrodynamic Dust Shield Using Active Particle Charging** Masato Adachi, Kyoto University, Japan
15.00	*Coffee Break*
	Session 14 - Measurements
15.20	**(Invited) Electric field measurement techniques and their practical applications** Maciej Noras, University of North Carolina at Charlotte, United States

16.00	**A non-invasive system to measure the spatially resolved charge of turbulent powder flows** Holger Grosshans, hysikalisch-Technische Bundesanstalt (PTB), Germany
16.20 – 18.00	*Poster Session 2 and Refreshments*

Thursday 7 September	
	Session 15 – Triboelectrification III
08.40	**Dry assembly strategies for attaining particle monolayers and ordered arrays** Dr Ignaas Jimidar, Vrije Universiteit Brussel, Belgium
09.00	**No time for charge mosaics: how bulk conductivity hides charge patterns in KPFM** Felix Pertl, IST Austria, Austria
09.20	**Dopant HOMO-LUMO Tuning for Effective Discharge of Contact Charges on Charge Transfer Cocrystal doped Polydimethylsiloxane** Görkem Eylül Kaya, Bilkent University, Turkey
09.40	**Influence of the Reynolds number from Re=150 to 210 on size-dependent bipolar charging** Simon Jantač, Physikalisch-technische Bundesanstalt, Germany
10.00	**Organic Dopants for Discharging of Tribocharges on Common Polymers By Light** Dr. Bilge Baytekin, Bilkent University, Turkey
10.20	**Sensitive detection of contact electrification with high time-resolution** Hermann Nienhaus, University Of Duisburg-Essen, Germany
10.40	*Coffee Break*
	Session 16 – Triboelectrification IV
11.00	**A triboelectric series of identical materials** Juan Carlos Sobarzo, Institute of Science and Technology Austria, Austria
11.20	**Contact charging between polymer film and metal plate as a function of indentation pressure** Yoshiaki Ota, Soka University, Japan
11.40	**Tribology and the Triboelectric Effect: Investigating the Role of Friction in Frictional Electrification** Dr Josh Armitage, University of Leeds, UK
12.00	**Controlling magnitude and polarity of triboelectric charges on polymers** Prof Andris Sutka, Riga Technical University, Latvia

12.20	**Design and Characterization of a MEMS-Based Electric Field Sensor with 1V@5cm Resolution and High-Fidelity Performance** Xiaolong Wen, University of Cambridge, UK
12.40	**Prize Presentation and Closing Remarks – Sponsored by** 
13.00	*Lunch*

Poster Programme

Poster Session 1 – Monday 4th September

P1.1. **Experimental analysis of a new high ozone concentration sterilization device**
Kamel Nassour, ICEPS Laboratory, Djillali Liabes University, Sidi Bel-Abbes, Algeria

P1.2. **Charge relaxation of particles and electrostatic discharges in powder loading**
Mizuki Shoyama, National Institute of Occupational Safety and Health,Tokyo, Japan

P1.3. **A charge emitter for use in evaluating aircraft rainfall enhancement**
Dr Keri Nicoll, University of Reading, United Kingdom

P1.4. **Electrical effects on droplet behaviour**
Dr Martin Airey, University of Reading, United Kingdom

P1.5. **Study of partial discharge and breakdown phenomena at triple junctions under various conditions of pressure and temperature**
Robert Szilágyi, Laboratoire De Génie Électrique Et Électronique De Paris (geeps), Université Paris-saclay, Centralesupélec, Cnrs, Gif-sur-Yvette, France

P1.6. **Modelling an ion thruster for a small spacecraft in very Low Earth Orbit**
Ivan B. Gomez, University of Bristol, United Kingdom

P1.7. **Effect of moisture content on the triboelectric charging of granular plastics**
Prof Lucian Dascalescu, University Of Poitiers, France

P1.8. **Electrostatic separation of PE et PP flakes from packaging waste**
Prof Lucian Dascalescu, PPRIME Institute, University of Poitiers, France

P1.9. **Experimental study of particles trajectories in a flexible-electrode-type electrostatic separator**
Prof Lucian Dascalescu, PPRIME Institute, University of Poitiers, France

Poster Session 2 – Wednesday 6th September

P2.1. **Performance Analysis of Surface and Volume DBD Ozone Generators with Various Voltage Signal Forms**
Dr Said Nemmich, Apelec Laboratory; Faculty of Electrical Engineering, Djillali Liabes University; Sidi-Bel-Abbes, ALGERIA;, sidi bel abbes, Algeria

P2.2. **Sorting of Plastic Waste Utilising Triboelectrification and Subsequent Electric Field Separation**
Jana Sklenářová, UCT Prague, Prague, Czech Republic

P2.3. **The distribution of electrostatic charge on rough particle surface**
Jarmila Pelcova, UCT, Prague, Czech Republic

P2.4. **Boehmite- Polyvinyl Alcohol Nanocomposites with Enhanced Thermal and Dielectric Properties for Energy Harvesting**
Ms. Ritu, Academy of Scientific and Innovative Research, Ghaziabad, 201002, Uttar Pradesh, India, Chandigarh, India

P2.5. **DC Volume Resistivity of Pharmaceutical Propellants and Their Mixtures for Enhanced Metered Dose Inhaler Performance**
Hussein Ahmad

P2.6. **Electrical environment can be altered at 1 km distances from high voltage power lines.**
James Matthews, University of Bristol, UK

P2.7. **Experimental study of particles trajectories in a flexible-electrode-type electrostatic separator**
Dr Imed-Eddine Achouri, University of Poitiers, France

P2.8. **DEM model for triboelectrification of rough viscoelastic particles**
Jiří Perner
University of Chemistry and Technology Prague, Czech Republic