

# ESA 33<sup>rd</sup> Annual Meeting: Final Program

**Tuesday, June 21<sup>st</sup> 2005**

5:00-8:30 PM **Registration and Reception**, Aurora Room, Schaffer Hall, Lister Conference Center, University of Alberta\*

**Wednesday, June 22<sup>nd</sup> 2005**

8:00 AM **Registration**

8:30-8:50 AM **Welcome and Announcements: Angela A. Antoniu, Conference Chair**

## **Session A: Frontiers in Electrostatics and its Applications**

8:50-9:15 AM **On the Interaction of Single Electrons in Nano-Electromechanical Systems**, R.H. Blick, University of Wisconsin

9:15-9:40 AM **ESD Reliability Issues for the Nanometer Technologies: Device and Design**, C. Duvvury, Texas Instruments

9:40-10:00 AM **Refreshment Break**

10:00-10:25 AM **Hindered Diffusion in Polymeric Gels**, R.J. Phillips, University of California at Davis

10:25-10:50 AM **Self Assembled Structures in Electromagnetically Driven Magnetic Granular Media**, A. Snezhko, I. Aranson, W.K. Kwok, Argonne National Laboratory

10:50-11:10 AM **Refreshment Break**

11:10-11:35 AM **Electromagnetically driven granular media: Phase Transitions, Patterns and Self-Assembly**, I. Aranson, Argonne National Laboratory

## **Session B: Electrostatic-Fluid Interactions**

11:35-12:00 AM **Drop and Breakup in Electro-separations**, O.A. Basaran, Purdue University

12:00-1:00 PM **Lunch Break, Faculty Club, University of Alberta (Buffet)**

1:00-1:25 PM **Voltage reduction in electrowetting-on-dielectric**, S. Kuiper, Philips Research

1:25-1:50 PM **Nanowires, Pores and Electro-spray in Microfluidic Systems**, D.J. Harrison, J.B. Bao, Y. Zeng, J. Wen, Z. Wang, J. Wasylcia, S. Sapelnikov, University of Alberta

1:50-2:10 PM **Refreshment Break**

2:10-2:35 PM **High Voltage Switching of Electro-Osmotic Flow in Microfluidics**, Sanket Goel, J.N. McMullin, M. Dagot, University of Alberta

## **Session C: Industrial Applications and Challenges in Electrostatics I**

2:35-3:00 PM **Water Drops on High Voltage Transmission Lines**, C. Roero, T.H. Teich, ETH Swiss Federal Institute of Technology

3:00-3:25 PM **Glow discharge plasma to alter surface properties**, S. Trigwell, C.R. Buhler, C.I. Calle, Kennedy Space Center NASA

3:25-3:45 PM **Refreshment Break**

3:45-4:10 PM **Electrostatic Fluid Accelerator and Air Purifier – The Second Wind**, I.A. Krichtafovitch, V.L. Gorobets, S.V. Karpov, A.V. Mamishev, Kronos Air Technologies

4:10-4:35 PM **Capturing Fine Particulates with Sieving Electrostatic Precipitator**, Z.H. Khan, H. Pasic, Ohio University

5:30 PM **Supper at the Faculty Club (Buffet)**

7:00 PM **ESA Council/Business Meeting at Faculty Club**

\*Note – All talks will be held in the Aurora Room

## Thursday, June 23<sup>rd</sup> 2005

8:30-8:55 AM	<b>Session C: Industrial Applications and Challenges in Electrostatics I</b> <b>Study of Velocity and Materials on Tribocharging of Polymer Powders for Powder Coating Applications</b> , A.S. Biris, S. Trigwell, R.A. Sims, M.K. Mazumder, University of Arkansas at Little Rock
8:55-9:20 AM	<b>Model of Roll Charging and Neutralization in Dielectric Web Processing</b> , P. Geffer
9:20-9:40 AM	<b>Refreshment Break</b>
9:40-10:05 AM	<b>Session D: Industrial Applications and Challenges in Electrostatics II</b> <b>Effects of Fast Transients Disturbances on Stator Interturn Insulation</b> , M.A. Paracha, N. Zia, Q. Ashfaq, M.S. Haque, T. Bashir, Illinois Institute of Technology
10:05-10:30 AM	<b>Ion Balance Monitoring for Air Ionizers Evaluation</b> , B.T. Williams, M.A. Noras, W.A. Maryniak, Trek, Inc.
10:30-10:50 AM	<b>Refreshment Break</b>
10:50-11:15 AM	<b>Air Assisted Electrostatic Liquid Spraying: A Short Circuited Electrostatic Energy Converter</b> , S. Zhao, G.S. Peter Castle, K. Adamiak, University of Western Ontario
11:15-11:40 AM	<b>Electrostatics in Tire Balancing</b> , J. Brown, R. Le Blanc, University of Western Ontario, Counteract Balancing Beads
11:40-12:05 PM	<b>Faraday Cup Based Instrument for the Triboelectric Charge Measurement in Textile Manufacturing</b> , M. Antoniu, A. Antoniu, G. Antoniu, F. Cotnăreanu, Technical University Gheorghe Asachi, University of Alberta
12:05-1:30 PM	<b>Lunch Break, Faculty Club, University of Alberta (Buffet)</b>
1:30-1:55 PM	<b>Session E: Fundamental Studies in Electrostatics and its Applications</b> <b>Challenges and Packaging Solutions in Portable QC Laser Systems for Atmospheric Gas Detection</b> , A. Antoniu, J. Manne, H. Zhang, J. Tulip, University of Alberta
1:55-2:20 PM	<b>A multi-species DC stationary model for negative corona discharge in oxygen; point-plane configuration</b> , J. Zhang, K. Adamiak, University of Western Ontario
2:20-2:45 PM	<b>Insulator Surface Charge as a Function of Pressure: Theory and Simulation</b> , M.D. Hogue, C.I. Calle, E.R. Mucciolo, P. Hintze, Electrostatics and Surface Physics Lab NASA
2:45-3:10 PM	<b>Refreshment Break</b>
3:10-3:35 PM	<b>The Criteria for Interfacial Electro-Thermal Equilibrium</b> , A.E. Seaver, Electrostatics Consultant
3:35-4:00 PM	<b>Electrostatic Levitation Unit: Experimental Study Versus Numerical Simulation</b> , L. Zhao, K. Adamiak, P. Leonard, G.S.P. Castle, University of Western Ontario
4:00-4:25 PM	<b>Electrostatic Properties of Lunar and Mars Dusts and Their Impact on Space Missions: A Brief Overview</b> , M. Mazumder, University of Arkansas
All Day	<b>Poster Session</b> <b>The Impact of Corona Discharge on Young Plants Exposed to Electromagnetic Waves</b> , M. Răcuciu, Z. Olteanu, D. Creangă, A. Râpă, University Alexandru Ioan Cuza, Douglas College <b>Corona Discharge Effect on Cell Proliferation in Plants</b> , D. Ichim, D.E. Creangă, A. Râpă, University Al. I. Cuza, Douglas College <b>The Role of Electrostatic Charge Accumulated by Respirable Sized Allergens with regard to Thunderstorm Asthma</b> , M. O'Leary, D. Koolpircuck, W. Balachandran, Brunel University <b>Surfaces with Intrinsic Dielectric Constant, Constitutive Electrostatic Equations, Applications on Electrochemical Systems</b> , R. Slavchev, B. Radoev, T. Boev, Sofia University

## Thursday, June 23<sup>rd</sup> 2005

5:00-9:00 PM **Conference Banquet, Faculty Club, University of Alberta (Dinner served at 6:00 PM, Happy hour 5:00-6:00 PM)**

## Friday, June 24<sup>th</sup> 2005

### **Session F: Electrostatic Interactions in Biological Systems**

8:30-8:55 AM **Optimization of Electroporation Parameters for Human Ovarian Cancer Cells**, T. Curd, B. Vernon, C. Pauken, R. Sundararajan, Arizona State University

8:55-9:20 AM **Molecular Dynamics Calculations of the Electrostatic Properties of the Tubulin Family of Proteins and Their Consequences for Drug Binding to Microtubules**, J.A. Tuszynski, E.J. Carpenter, T. Luchko, T. Huzil, University of Alberta

9:20-9:40 AM **Refreshment Break**

9:40-10:05 AM **Electrostatic Considerations in Mitogenesis**, L.J. Gagliardi, Rutgers University

10:05-10:30 AM **Electric Field Distribution and Plasmid Transport in the Rat Mesenteric Vasculature due to Electroporation-A Modeling and In-Vivo Analysis**, C. Cappaccio, D.A. Dean, R. Sundararajan

10:30-11:00 AM **Refreshment Break**

### **Session G: A Little History and Some Concluding Remarks**

11:00-11:25 AM **A Brief Look at Ben Franklin's Researches in Electricity**, John A. Pelesko, University of Delaware

11:25-11:35 PM **Concluding Remarks**, John A. Pelesko, Technical Chair

12:00 PM **Lunch Break, Maple Leaf Room, University of Alberta**

1:00-3:00PM **Tour of the Canadian Institute of Nanotechnology**