



DEP2026, Bigelow Hall, University of Louisville



6/24/2026 - Wednesday				
8:30	Breakfast			
8:50	Intro Remarks			
9:00	Exploring DEP Phenomena	T01	Pesch	High-Throughput Dielectrophoresis: Increasing Selectivity and Separation Efficiency
9:20		T02	Leung	Asymmetry-Induced Particle Migration in AC Electric Fields through Concentration Polarization
9:40		T03	Bangaru	Dielectrophoretic Slide: An Electrokinetic Platform for Analyzing Micro/Nano Particle Polarizability
10:00	Chair: Mukul Sonker	T04	Mendiola-Escobedo	Nonlinear Electrophoretic Separations of Particles and Cells in Free-Solution Systems
10:20	Co-Chair: Yadav Shivam	T05	Sun	Giant Negative Differential Resistance in Ion-Exchange Hydrogels Driven by Electro-Osmotic Streaming Current
10:40	Break			
11:00	KEYNOTE #1 (Phenomena)	K01	Gimsa	A new approach to DEP work, in which media with low polarizability are replaced by media with high polarizability at high-field locations, explains the evolution of particle trajectories and structures in fluidic microsystems by the law of maximum entropy production (LMEP)
11:20				
11:40	Exploring DEP Phenomena	T06	Tabarhoseini	AC Insulator-based Dielectrophoretic Manipulation of Nanoparticles in a Ratchet Microchannel
12:00	Chair: Gongchen Sun Co-Chair: Aaditya Bangaru	T07	Mens	Quantitative Fluorescence Profile Analysis Using a Continuum Model for Nanoparticle Polarizability
12:20	Lunch & Posters			
12:40				
13:00				
13:20				
13:40	KEYNOTE #2 (Phenomena)	K02	Snoeyink	Continuum Modeling of Dielectrophoretic Transport
14:00	DEP+Cytometry	T08	Righetto	High-Resolution Dielectric Spectroscopy of Single Flowing Cells
14:40	Chair: TBD Co-Chair: Brittany Ginatny	T09	Swami	On-Chip Integration of Cytometry with Dielectrophoresis for Inline Monitoring and Optimization of Cell Separations on Physical Metrics
15:00	Break			
15:20	Label-Free Profiling & Detection	T10	Guiducci	A Microfluidic Platform for Whole-Membrane Integrity Profiling in Live Neuronal Cells
15:40	Chair: Carlotta Guiducci	T11	Doost	Label-Free Detection of Babesiosis via Dielectrophoretic Profiling of Babesia microti-Infected Red Blood Cells
16:00	Co-Chair: Priscilla Adiwah	T12	Kasarabada	Electrokinetic Characterization and Separation of Bacteriophage ϕ KZ from Escherichia coli
Opening Reception				

6/25/2026 - Thursday				
8:30	Breakfast			
8:50	Intro Remarks			
9:00	DEP & Oncology	T15*	Stimson	Dual-Electrokinetic Technique for Blood-Based Analysis of Extracellular Vesicle-Associated Protease Activity in Cancer
9:20		T13	Schelske	Machine Learning Classification of Marker-Free Melanoma Cells Following Isolation from Peripheral Blood by Dielectrophoresis
9:40		T14	Henslee	Dielectrophoresis Addresses Heterogeneity Challenges in Treating Glioblastoma
10:00	Chair: Adrienne Minerick	T16	Braun	Exploring the Use of DEP to Uncover the Fructose Uptake in the Progression of Breast Cancer
10:20	Co-Chair: Sai Yaram	T17	Ware	Well-Plate Dielectrophoresis Device for High Throughput Analysis of Liquid Biopsy Samples
10:40	Break			
11:00	KEYNOTE #3 (Oncology)	K03	Gao	Flexible, Low-Cost Device Enabling Precise, Portable, Dielectrophoretic Cancer Cell Separation and Microfluidic Manipulation
11:20				
11:40	DEP for Recycling & Affordability	T19	Yaram	Electrokinetic Microfluidics: An Affordable Fabrication Approach for the Precision Manipulation of Bioparticles Using Xurography
12:00	Chair: Lisa Flanagan Co-Chair: John Ware	T18*	O'Donnell	Material Recycling using Dielectrophoresis
12:20	Lunch & Posters			
12:40				
13:00				
13:20				
13:40	KEYNOTE #4 (Overall DEP)	K04	Hayes	What Can Dielectrophoresis Tell Us About the Universe
14:00	DEP - A Large Universe	T20	Boika	DEPminer: Reliable Extraction of Experimental Dielectrophoresis Parameters from the Literature for Database Construction
14:40	Chair: Georg Pesch Co-Chair: Akila Wijesinghe	T21	Labeed	Dielectrophoresis for Cell Electrical Fingerprinting Across Different Disease Modalities
15:00	Break			
15:20	Pheno & Genotyping with DEP	T22	Flanagan	Single Cell RNA-Sequencing of DEP Sorted Cells
15:40	Chair: TBD	T23	Anand	Functional Prototyping of Single Cancer Cells Using Dielectrophoretic Isolation and Compartmentalization
16:00	Co-Chair: Reza Navaei	T24	Sonker	Selective Plasmid DNA Enrichment via Dielectrophoresis using High-Resolution 3D-Printing
Banquet at Churchill Downs				

6/26/2026 - Friday				
8:30	Breakfast			
8:50	Intro Remarks			
9:00	Dr. Washizu Memorial Session	T25	Hughes	Measurement of Cytoplasm Conductivity as a Function of Medium Composition Yields New Electrophysiology Insights
9:20		V01	Moscato	Automatic Electrorotation-Based Cell-Physiometry Platform
9:40		V02	Techaumnat	On-Chip Enhancement of Electroporation and Electrofusion by Electric Field Constriction
10:00	Chair: Alex Boika	V03	Pethig	The Clausius-Mossotti Factor in Dielectrophoresis: A Critical Appraisal of its Proposed Role as an 'Electrophysiology Rosetta Stone'.
10:20	Co-Chair: Matin Tabarhoseini			
10:40	Break			
11:00	Virtual Session	V04	Gilioli	Raman-DEP Method for Nanoplastics Analysis
11:20		V05	Rachbuchdol	Hybrid Magnetic-Electric Actuation for Enhanced Motion Control and Multi-Surface Operation of Janus Microrobots
11:40	Chair: Erin Henslee	V06	Brandi	Towards the Development of a Microfluidic Device for 3D-Control of Microparticles Through Dielectrophoresis
12:00	Co-Chair: Andy Leung	V07	Jaleeli	Comparative Study of Dielectrophoretic Collection Rate in Normal, Cancerous, and Jaundice Human Erythrocytes
12:20	Lunch & Awards			
12:40	<p style="text-align: center;">Evening Events</p> <p style="text-align: center;">Tuesday: Social at 6pm-8pm @Hop Atomica (join as you wish)</p> <p style="text-align: center;">Wednesday: Opening Reception at 4:30pm (all attendees included)</p> <p style="text-align: center;">Thursday: Banquet at 5pm @ Churchill Downs (banquet ticket purchased in advance)</p> <p style="text-align: center;">Distillery Tour @ Angel's Envy (Tues. 6pm or Fri. 2pm) - \$30, contact Stuart Williams in advance, spots are limited</p>			

Poster #
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Presenter	Title
Paul Todd	History of Low-Conductivity Media for Living Cells
Christian Ross	On-Chip Dielectrophoresis and PCR Amplification of Mutated Oncogenes from Low-Volumes of Unaltered Plasma
Monika Weber	Ultra-Fast Dielectrophoretic Capture and Optical Detection of Bacteria Using a Microchip-Based Platform
Sarah Mitchell	Isolation of Tumor-Derived Nanoparticles from Human Plasma Using High Conductance Dielectrophoresis for Biomarker Source Identification
Mehrzad Sasanpour Yazdi	Going Beyond Just Immunostained Biomarker Fluorescence Intensity of Electrode Arrays for Dielectrophoresis-Based Differentiation of Pancreatic Cancer from Benign Diseases
Aytug Gencoglu	DEP-Based Identification and Enrichment of CRISPR-Edited Cells
Debneela Paul	Dielectrophoretic Motion and Assembly of Microsized Liposomes with Distinct Liquid Phases
Edoardo Bargis	Active Dielectrophoretic Trapping for Deterministic Single-Cell Encapsulation in Droplet Microfluidics
Yide Jiao	Characterization of Extracellular Vesicles Using Microfluidic Dielectrophoresis
Debneela Paul	Dielectrophoretic Manipulation of Liposomes as Model Extracellular Vesicles
Arianna Escalona	Dielectrophoretic Analysis of Apoptotic Cell Death After Electroporation Treatment
Canreen Kaur	Dielectric Differentiation of Clinically Relevant Candida Species Using Multi-Frequency DEP Profiling
Reza Lotfi Navaei	Impact of Coupled Fluid-Field Physics on Molecular Dielectrophoresis
A K M Fazlul Karim Rasel	Microscale Marine Minerals Probed by Insulator-based Dielectrophoresis
Evan Kunkle	Media-Dependent Changes in Candida cells Morphology
Negar Farhang Doost	Dielectric Characterization of Breast Epithelial and Cancer Cells Following Treatment with Nano-Encapsulated Manganese Oxide (NEMO) Using Dielectrophoresis
Viswateja Kasarabada	Multistage Electrokinetic Purification of Bacteriophages from Proxies
Carlos A. Mendiola-Escobedo	Development of a unified viability assessment across cell domains
Qingrong He	Dielectrophoretic Isolation of Tumor-Macrophage Circulating Cell Clusters to Study Melanoma Brain Metastasis
Brittany Ginnaty	A Multi-Frequency DEP-BPE Platform Enabling High-Purity, High-Yield Melanoma Cell Capture
Priscilla Adiwah Apreary	Effect of Surfactant Concentration on the Stability of Corona-Induced Emulsions
Spencer Mahaffey	AC electrokinetic separation of particles in a straight rectangular microchannel
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