

# ELKIN 2014

11<sup>th</sup> International Symposium on Electrokinetic Phenomena  
May 20 - 23 2014  
Ghent, Belgium

## Announcements

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## Conference program

### Program overview

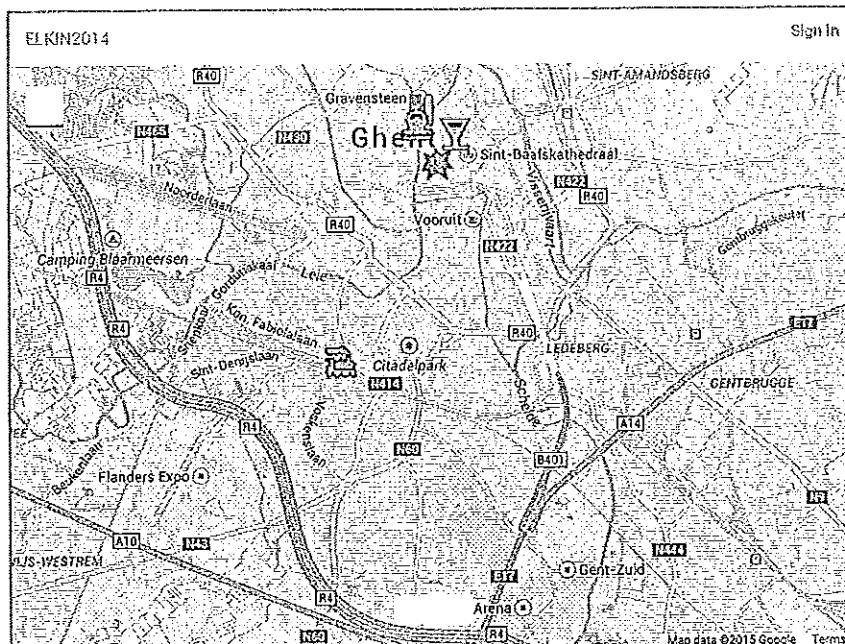
	Tuesday May 20	Wednesday May 21	Thursday May 22	Friday May 23
		Opening words		
			Colloids in Liquid Crystals	
				Biological & Environmental Applications
	Tutorial Lectures	Theory & Fundamentals	Nonpolar media	
			Lunch	
			Poster session	
	Tutorial Lectures	Electro-Microfluidics		Experimental Techniques
			Soft Colloids	
	Opening Reception	Reception at the City Hall	Boat Trip and Conference Dinner	Closing words

## Links

- [ELKIN](#)
- [Ghent University](#)
- [Liquid Crystals & Photonics group](#)
- [The city of Ghent](#)

## Contact

[Via email](#)



## Detailed program

Tuesday May 20

Tutorial day

[Download Abstracts](#)

- 08:30 Reception desk open (Aula)
- 09:30 TL1 Tutorial Lecture: [Hans Lyklema](#)  
*Principles of Electric Double Layers and Electrokinetics*
- 10:45 TL2 Tutorial Lecture: [Hiroyuki Ohshima](#)  
*Electrokinetics of Soft Particles*
- 12:00 Lunch
- 13:00 TL3 Tutorial Lecture: [Dennis Prieve](#)  
*Charge Effects in Doped Nonpolar Liquids*
- 14:15 TL4 Tutorial Lecture: [Oleg Lavrentovich](#)  
*Basic Properties of Liquid Crystals*
- 15:30 Coffee Break
- 16:00 TL5 Tutorial Lecture: [Angél Delgado](#)  
*Biological and Environmental Applications*
- 17:15 TL6 Tutorial Lecture: [Matthew Suss](#)  
*Introduction to Electro-Microfluidics: Theory and Cutting Edge Applications*
- 18:30 Free
- 19:00 Opening Reception (Aula)

Wednesday May 21

Session Theory and fundamentals

[Download Abstracts](#)

- 08:00 Reception desk open (Aula)
- 08:45 Opening words (Aula)
- 09:00 KN1 Keynote: [T. Palberg](#)  
*On the Density Dependence of the Electrophoretic Mobility*
- 09:45 O1 B. Siboulet, [J.-F. Dufrêche](#), B. Coasne, P. Turq  
*Multi-scale Modelling of Silica Surfaces for Electrokinetic Phenomena*
- 10:05 O2 [C. Chassagne](#), G. Stelling, Y. Tsujimoto

*Role of Particle Shape in the Electrokinetic Response*

- 10:25 O3 A. Ramos, J.J. Arcenegui, P. García-Sánchez, H. Morgan  
*Ac Electrokinetics of Metal Nanowires*
- 10:45 Coffee Break
- 11:05 O4 S. Stoylov  
*Electro-Optic and Some Other Electrokinetic Phenomena*
- 11:25 O5 Y. Green, G. Yossifon  
*Electroconvection in Heterogeneous Permselective Systems*
- 11:45 O6 A. Yaroshchuk, M. Bondarenko  
*Modelling Ion Transfer through Ultra-Thin Membrane Barrier Layers: the Role of Deviations from Local Electric Neutrality*
- 12:05 O7 H. Sugioka  
*Ion-conserving Poisson-Boltzmann Theory and the Extension to the Induced-charge Electro-kinetic Phenomena*
- 12:25 O8 N. Mishchuk, L. Lysenko, N. Barinova, T. Nesmejanova  
*Polarization and Electroosmotic Flow in Systems of Various Geometry and Physicochemical Properties*
- 12:45 O9 J.J. López-García, C. Grosse, J. Horno  
*Mixed Equilibrium Electrical Double Layers: Ion Size and Effective Ion Permittivity Effects*
- 13:05 Lunch

**Session Electro-Microfluidics**

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- 13:50 KN2 Keynote: T.M. Squires, R. Nery-Azevedo, J.S. Paustian  
*Electrokinetics with Tailored Porous Materials: Direct, In Situ Measurement of Phoretic Migration, and Nonlinear Electrokinetic Pumps*
- 14:35 O10 T. Heldal, N. Mishchuk, T. Volden, J. Auerswald, H. Knapp  
*Microfluidic Pump Based on Concentration Polarization of Ion-Exchange Beads*
- 14:55 O11 C.P. Nielsen, H. Bruus  
*Models of Hydrodynamic Dispersion in an Electrolyte Moving through a Microchannel during Concentration Polarization*
- 15:15 O12 J. Schiffbauer, N. Liebowitz, S. Park, G. Yossifon  
*Probing Space Charge and Resolving Overlimiting Current Mechanisms at the Micro-Nanochannel Interface Using Electrochemical Impedance Spectroscopy*
- 15:35 Coffee Break
- 15:55 KN3 Keynote: M. Suss  
*Novel Electrochemical Systems for Energy Storage and Water Desalination Leveraging Flow-through Porous Media*
- 16:40 O13 P. García-Sánchez, J.J. Arcenegui, H. Morgan, A. Ramos  
*Suppression of Induced-Charge Electroosmosis by the Addition of Polyethylene Oxide to the Electrolyte*
- 17:00 O14 O. Schnitzer, I. Frankel, E. Yariv  
*Electrophoresis of Bubbles*
- 17:20 O15 O. Schnitzer, I. Frankel, E. Yariv  
*Electrokinetics of Metal Drops Revisited*
- 18:00 Official Reception at the City Hall

**Thursday May 22**

**Session Colloids in Liquid Crystals**

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- 08:30 Reception desk open (Aula)
- 09:00 KN4 Keynote: O.D. Lavrentovich

### *Electrokinetics in Nematic Liquid Crystals*

- 09:40 O16 K. Kang, J.K.G. Dhont  
*Field-Induced Transitions in Suspensions of Rod-like Colloids, Association and Dissociation of Condensed Ions*
- 10:00 O17 O. Henrich, K. Stratford, J. Lintuvuori, D. Marenduzzo, M.E. Cates  
*New Soft Composite Materials Based on Blue Phases and Cholesteric Liquid Crystals*
- 10:20 KN5 E. Brasselet  
*Localized Topological Structures in Liquid Crystals: Generation, Manipulation and Applications*
- 11:00 Coffee Break

### Session Nonpolar Media

#### Download Abstracts

- 11:25 KN6 **Keynote:** P. Bartlett  
*Colloid Electrostatics at Very Low Ionic Strengths*
- 12:10 O18 D.S. Cho, Y.K. Suh  
*Development of Two-Way EHD Pump by the Use of Four Circular Electrodes*
- 12:30 O19 Amr Abdel-Fattah  
*Colloid and Interface Science Advancing Petroleum Technology*
- 12:50 O20 G.N. Smith, J. Eastoe  
*Surfactant-Induced Charging of Colloidal Latexes in Nonpolar Solvents*
- 13:10 Lunch

### Session Soft Colloids

#### Download Abstracts

- 16:20 KN7 **Keynote:** R. Zimmermann, S.S. Dukhin, S. Bartsch, J. Posseckardt, U. Freudenberg, M. Mertig, J.F.L. Duval, C. Werner  
*Electrokinetic Analysis to Reveal Charge, Structure and Biomolecular Interactions of Planar Diffuse Soft Interfaces*
- 17:05 O21 A.V. Sybachin, O.V. Zaborova, V.N. Orlov, Y. Talmon, A.A. Yaroslavov  
*Complexes of Anionic Liposomes with Spherical Polycationic Brushes as Multifunctional Nanocontainers*
- 17:25 O22 Y. Adachi, L. Feng  
*Effect of Charge Density of Polyelectrolyte Chain on the Electrophoresis and Stability of PSL Particles Coated with Poly-Cation*
- 17:45 O23 M. Rasmusson  
*Non-Ionic Surfactant Adsorption on Anionic Paraffin Particles*
- 18:05 Free
- 19:00 Boat Trip followed by the Conference Dinner

## Friday May 23

### Session Biological & Environmental Applications

#### Download Abstracts

- 08:30 Reception desk open
- 09:00 KN8 **Keynote:** R.J. Hill  
*Electrokinetics of Nanoparticle Doped Hydrogels*
- 09:45 O24 N.C. Stellwagen  
*The Free Solution Mobility of DNA Charge Variants*
- 10:05 O25 E. Chibowski, A. Szczes, M. Jurak  
*Zeta Potential of Phospholipid/Cholesterol Liposomes Affected by Enzyme*
- 10:25 O26 I. Guido, E. Bodenschatz

*Migration of Amoeba Cells in an Electric Field*

- 10:45 Coffee Break
- 11:10 O27 M. Biesheuvel  
*Negative Joule Heating in Ion-Exchange Membranes*
- 11:30 O28 S. Schlumpberger, M.E. Suss, D.S. Deng, A. Manl, M.Z. Bazant  
*Water Purification and Brine Concentration by Shock Electrodialysis*
- 11:50 O29 Z. Sadowski, A. Didyk-Mucha, I. Polowczyk  
*Electrokinetic and Flotation Investigations of the Surface Properties Modification of Magnesite Using Biosurfactants and Surfactants*
- 12:10 O30 G. Lefèvre, A. Plé, F. Cadot, S. Delaunay, C. Mansour  
*Effect of Water Impurities and Amine Buffers on Zeta Potential of Corrosion Products in Secondary Circuits of Pressurized Water Nuclear Reactors*
- 12:30 O31 R. Roa, E.K. Zholkovskiy, G. Nägele  
*Filtration of Soft Particles Suspensions*
- 12:50 O32 M.L. Jiménez, M.M. Fernández, S. Ahualli, A.V. Delgado  
*Multi-Ionic Effects on Energy Production Based on Double Layer Expansion by Salinity Exchange*
- 13:10 Lunch

**Session Experimental Techniques**

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- 14:10 KN9 **Keynote: J. Lyklema**  
*Electrophoresis of Homodisperse Hairy Silica Particles in Alcohol*
- 14:55 O33 P.J. Sides, D.C. Prieve  
*Determination of the Zeta Potential and Permeability of a Porous Material by Rotation of a Disk-Shaped Sample*
- 15:15 O34 E. Maczka, M. Kosmulski  
*Time-Dependent Electrokinetic Potentials in SDS-Hematite System*
- 15:35 O35 I.A. Martínez, É. Roldán, P. Mestres, A. Ortiz, R.A. Rica, Dmitry Petrov  
*Optical Tweezers: From Single Particle Electrophoresis to Stochastic Thermodynamics*
- 15:55 Coffee Break
- 16:20 KN10 **Keynote: D. Prieve**  
*Debye Length, Conductivity and Permittivity of Doped Nonpolar Liquids Inferred from Electrochemical Impedance Spectroscopy*
- 17:05 O36 S. Gourdin, O. Bernard  
*Electro-Acoustic Potential: From the Ions towards the Colloids*
- 17:25 O37 V. Adibnia, R.J. Hill  
*Electroacoustics of Nanoparticle Doped Hydrogels*
- 17:45 O38 A.V. Delgado, S. Ahualli, M.A. González, R.A. Rica, M.L. Jiménez  
*Experimental Study of the Electric Permittivity Spectra and Dynamic Mobility of Suspensions of Gibbsite Nanoparticles*
- 18:05 Closing words (Aula)

**Poster Session**

Download Abstracts

- P1 F. Carrique, E. Ruiz-Reina, R. Roa, F.J. Arroyo, A.V. Delgado  
*The Importance of Allowing for Realistic Conditions in Dynamic Electrophoresis of Spherical Particles in Aqueous Salt-Free Suspensions*
- P2 E.A. Disalvo, A.M. Bouchet, C.L. Salcedo, A.C. Cutro, A. Hollmann and M.A. Frías.  
*Structural and Thermodynamic Properties of Water-Membrane Interphases: Significance for Peptide/Membrane Interactions*
- P3 R. Fink, K. Bohinc  
*Effects of Ethanol Based Disinfectant on Bacterial Zeta Potential*
- P4 S. Ahualli, M.M. Fernández, G. Iglesias, M.L. Jiménez, A.V. Delgado

*Capacitive Energy Extraction from Salinity Differences Using Soft Carbon Electrodes*

- P5 T. Tanaka, H. Kato, K. Fujihara, M.S. Jami, M. Iwata  
*Effect of Flow Path Structure on Electroosmotic Dewatering*
- P6 L. Lysenko, N. Mishchuk, N. Borovitskiy, E. Rynda  
*Electroosmotic and Pressure Driven Dewatering of Clay Dispersions*
- P7 L. Lysenko, N. Mishchuk, E. Rynda, A. Shen  
*Electroosmotic Remediation of Fine Clay Soils Polluted by Uncharged Hydrophobic Organic Compounds*
- P8 L. Maxwell, J. Pascal  
*Modelling the Effect of Alternating Applied Electrical Fields on Tumor Cell Death*
- P9 T. Preočanin, N. Kallay, J. Lützenkirchen  
*The Effect of Water on pH-Dependent Charge at Metal Oxide/Aqueous Electrolyte Interface*
- P10 P. Guedes, E.P. Mateus, N. Couto, Y. Rodriguez, A.B. Ribeiro  
*Remediation of Triclosan in Soil through Electrokinetics*
- P11 A. Szczes, A. Jarosz-Wilkolazka, M. Czemińska, L. Holysz  
*Flocculating Properties of an Extracellular Biopolymer Produced by Bacterial Strain Rhodococcus*
- P12 S.H. Hristova, A.M. Zhivkov  
*Electrophoretic and Electro-Optical Research of Montmorillonite Nanoplates*
- P13 R.P. Hristov, A.M. Zhivkov  
*Electrophoretic Mobility of Alumina Particles with Adsorbed Carboxymethyl Cellulose*
- P14 A. Obliger, M. Jardat, D. Coelho, S. Bekri, B. Rotenberg  
*Pore Network Model of Electrokinetic Transport through Charged Porous Media*
- P15 C. Sharma, T. Brans, S. Samal, P. Dubruel, F. Beunis  
*Optical Trapping Electrophoresis of Conjugated Microparticles for Drug Delivery and Biomolecule Detection*
- P16 M. Cancula, M. Ravnik, S. Zumer  
*Light Beam Modulation Using Nematic Defect Lines*
- P17 W.A. Booth, B. Edwards, A. Timperman, K.D. Jo, N. Draper  
*Travelling Wave Electrophoresis for Microfluidic Separations*
- P18 T. Brans, C. Schreuer, F. Strubbe, F. Beunis, K. Neyts  
*Enzyme Concentration Measurements with Optical Tweezing Electrophoresis*
- P19 H.J. Keh, G.Y. Chen  
*Transient Electrokinetic Flow in a Fibrous Porous Medium*
- P20 M. Stubbe, J. Gimsa  
*Electro-Thermal Micro-Pumps: Exploiting Structural Polarizations at Smeared Interfaces*
- P21 Y. Uematsu, T. Araki  
*Electro-Osmotic Flow of Semidilute Polyelectrolyte Solutions*
- P22 V. Adibnia, R.J. Hill  
*Electroacoustics of Nanoparticle Doped Hydrogels*
- P23 F. Aliotta, P. Calandra, M. Pochyński, R.C. Ponterio, G. Salvato, C. Vasi  
*A Critical Review of the Electro-spray Mechanisms*
- P24 M. Budden, S. Schneider, B.P. Cahill, J.M. Köhler  
*Electrical Switching of Droplets in Segmented Flow*
- P25 R. Puset, G. Méridet, J. Chevalet, E. Dubois  
*Electroacoustic versus Electrophoretic Measurements on Dispersions of Nanocolloids*
- P26 L. Lapčik, E. Otyepková, B. Lapčiková, M. Otyepka  
*Surface Energy Analysis (SEA) Study of Hyaluronan Powders*
- P27 P. Leroy, G. Méridet, E. Zimmermann, J.A. Huisman  
*Low Frequency Complex Impedance Measurements of Na-Montmorillonite Suspensions*
- P28 T. Luxbacher, A. Yaroshchuk  
*New Insights into the Streaming Potential Analysis of Solids*
- P29 V. Milkova  
*Electrical Properties of Polyelectrolyte/Nanoparticle Hybrid Films on Anisometric Colloids Studied by Electro-Optics*
- P30

K. Nakamura

*Pore Size Monitoring of MF/UF Membranes during Filtration Processes by Streaming Potential Measurement*

- P31 C. Schreuer, T. Brans, S. Vandewiele, F. Strubbe, K. Neyts, F. Beunis  
*Alternating Zeta-Potential Pattern to Eliminate Electro-Osmotic Flow*
- P32 S. Vandewiele, O. Drobchak, F. Beunis, K. Neyts, F. Strubbe  
*Fourier-Bessel Based Image Analysis for Multi-Parameter Particle Characterization*
- P33 J. Vacek, L. Lapcik, B. Lapčková  
*Impinging Jet Study of the Deposition of Colloidal Particles on Synthetic Polymer (Zeonor)*
- P34 A.N. Zhukov, F.R. Gareeva, A.E. Aleksenskii  
*Electrokinetic Properties of Primary Particles of the Deagglomerated Detonation Nanodiamond in Aqueous KCl Solutions*
- P35 O. Drobchak, M. Karvar, E. Zagato, F. Strubbe, K. Braeckmans, F. Beunis, K. Neyts  
*Visualization of Reverse Micelles Containing Water*
- P36 S.D. Finlayson, P. Bartlett  
*Highly Charged and Salt Free Nonpolar Colloids*
- P37 M. Karvar, F. Strubbe, F. Beunis, K. Neyts  
*Characterization of Size Inverse Micelles in Nonpolar Liquids Using Transient Current Measurements*
- P38 M. Prasad, F. Beunis, K. Neyts, F. Strubbe  
*Switching Charged Inverse Micelles in Non-Polar Liquids*
- P39 F. Strubbe, S. Vandewiele, O. Drobchak, F. Beunis and K. Neyts  
*Image Analysis for Studying Electrokinetics in Nonpolar Liquids*
- P40 L. Holysz, A. Szczes  
*Influence of DPPC Layers and PLA2 on Surface Properties of Silica Particles*
- P41 R. Zimmermann, S. Bartsch, U. Bonda, J. Posseckardt, U. Freudenberg, M. Mertig, C. Werner  
*Ionization, Structure and Biomolecular Interactions of Biohybrid Hydrogels*
- P42 J.J. Arcenegui, P. García-Sánchez, H. Morgan, A. Ramos  
*Electro-Orientation of a Metal Nanowire Subjected to Thermal Fluctuations*
- P43 M. Quesada Pérez, S. Ahuallia, A. Martín-Molina  
*Monte Carlo Simulation of Thermo-Responsive Charged Nanogels in the Presence of Salt*
- P44 O. Bernard, G.M. Roger, J. Aupiais, P. Turq  
*Electrophoretic Mobilities in Mixed Electrolytes: Effect of Ionic Strength in Concentrated Buffer Solutions. Modeling within the Mean Spherical Approximation*
- P45 V. Dahirel, Zhao X., M. Jardat  
*How Good Are Theories of Electrolyte Transport? Answers from Mesoscopic Simulations*
- P46 P. Leroy, N. Devau, C. Tournassat, M. Azaroual  
*Modelling the Induced Polarization of Bentonite-Sand Mixtures*
- P47 C. Grosse  
*A Program for the Fitting of Debye, Cole-Cole, Cole-Davidson, and Havriliak-Negami Dispersions to Dielectric Data*
- P48 E. Ruiz-Reina, F. Carrique  
*Assessment of the validity range of the standard linear perturbation models of electrophoresis with high electric field calculations*
- P49 M. Tirado, S. Real, C. Sandoval, O. Marín, D. Comedi  
*ZnO Nanowire Arrays Grown by Electrophoretic Deposition Technique from Colloidal Suspensions of ZnO Nanoparticles*
- P50 H. Washizu, T. Kinjo, H. Yoshida  
*Extended Coarse-Grain Methods for Coulomb Soup*
- P51 C. Zunke, F. Platten (Evers), R.D.L. Hanes, A. Yethiraj, S.U. Egelhaaf  
*Colloidal Dynamics in Simultaneous Electric and Optical Potentials*
- P52 J.J. López-García, C. Grosse, J. Horno  
*Influence of the Finite Size and Effective Permittivity of Ions on the Equilibrium Double Layer around Colloidal Particles in Aqueous Electrolyte Solution*