

DAY 1, SUNDAY, JUNE 4, 2017

14:00 - 18:00

Registration (University of Chemistry and Technology, Prague, Building A)

19:00 - 20:30

Welcome Reception (University of Chemistry and Technology, Prague, Building B)

DAY 2, MONDAY, JUNE 5, 2017

09:00 - 09:30	Opening Ceremony	
09:30 - 10:20		Chair: Manuel Rodrigo
Plenary Lecture	Electrochemical Engineering Time-Travel <u>A. A. Wragg</u>	25

10:20 - 11:00 Coffee Break

11:00 - 13:00	Session I - 2	Chair: Ann Cornel
	Design and fabrication of a low-cost anode for electrolytic water disinfection <u>S. González, M. Colet-Lagrille</u>	122
	Titanium supported manganese containing electrodes for environmental applications. <u>G. Sotgiu, M. Orsini, D. Montanaro, E. Petrucci</u>	94
	Effect of titanium hydride as interlayer on the stability of Ti/Sn-Sb-Ni oxide anodes prepared by spin coating <u>M. Abbasi, S. Sandin, J. Bäckström, A. Cornell</u>	32
	The effect of Ti metal surface modification on its passivation and surface contact resistance <u>T. Bystron, M. Vesely, M. Paidar, K. Bouzek</u>	102
	Pd-Zn/C bimetallic electrocatalysts for oxygen reduction reaction <u>G. Bampos, D.I. Kondarides, S. Bebelis</u>	60
	Reversible electrokinetic adsorption barriers for the removal of organochlorine herbicide from spiked soils <u>S. Rodrigo, C. Sáez, P. Cañizares, M. A. Rodrigo</u>	63

11:00 - 13:00	Session II - 4	Chair: Thomas Turek
	Graphite felt electrodes for vanadium redox flow battery – optimization of thermal treatment with respect to performance and durability <u>P. Mazúr, J. Mrlík, J. Pociđič, J. Vrána, J. Dundálek, J. Kosek</u>	89
	Study of new electrode materials for the vanadium redox flow batteries <u>N.K. Hernandez-Sanchez, C. Ponce de Leon</u>	30
	Platinum coated porous electrodes for redox flow batteries: X-Ray tomography, mass transfer and pressure drop studies <u>L. F. Arenas, C. Ponce de León, F. C. Walsh</u>	4
	Strategies to suppress shunt currents in redox flow batteries <u>J. Pociđič, J. Dundálek, M. Solík, J. Vrána, P. Mazúr, J. Kosek</u>	99

	Effect of membrane properties on performance of vanadium redox flow battery <u>J. Vrána</u> , J. Charvát, P. Mazúr, J. Pociďič, J. Dundálek, J. Kosek	101
	Capacity balancing methods for vanadium redox-flow batteries <u>K. Schafner</u> , T. Turek	10

13:00 - 14:00 Lunch

14:00 - 16:00	Session I - 2, 1	Chair: Symeon Bebelis	
Keynote lecture	Selectivity between oxygen and chlorine formation in the chlorate process <u>A. Cornell</u> , B. Endrődi, R. Karlsson, S. Sandin		135
	In situ increased cathode selectivity in the hydrogen evolution reaction by addition of multivalent transitional metal compounds to the solution <u>B. Endrődi</u> , 2N. Simic, M. Wildlock, A. Cornell		12
	In situ monitoring the phenomenon of Electrochemical Promotion of Catalysis by synchrotron analysis <u>A. de Lucas-Consuegra</u> , J. Gonzalez-Cobos, J.P. Espinós, V. Rico, J.R. Sánchez-Valencia, A.R. González-Elipe, V. Perez-Dieste, C. Escudero		47
	Electrochemical oxidation of Hydroxymethylfurfural to 2,5-furandicarboxylic acid. <u>R. Latsuzbaia</u> , R.J.M. Bisselink, M. Crockatt, C.P.M. Roelands, E.L.V. Goetheer		96
	Development of new electrolyzers for hydrogen production from alcohols A.B. Calcerrada, A.R. de la Osa, J. Llanos, F. Dorado, J.L. Valverde, <u>A. de Lucas-Consuegra</u>		62

14:00 - 16:00	Session II - 4	Chair: Martin Paidar	
Keynote lecture	The electrochemical generation of hydrogen - How did it start-a historical overview <u>M.E.H. Bergmann</u>		37
	Effect of the MEA manufacturing process on the performance of PEM water electrolysis single cells with different sizes M. Paidar, T. Bystroň, K. Bouzek, <u>G. Papakonstantinou</u> , T. Vidakovic-Koch, K. Sundmacher, C. Immerz, B. Bensmann, R. Hanke-Rauschenbach		112
	Experimental analysis of a 50 cm single-channel PEM water electrolysis cell <u>C. Immerz</u> , M. Schweins, T. Bystroň, M. Paidar, B. Bensmann, K. Bouzek, R. Hanke-Rauschenbach		24
Keynote lecture	Gas purity in PEM and alkaline water electrolysis P. Haug, M. Koj, B. Kreitz, P. Trinke, B. Bensmann, R. Hanke-Rauschenbach, <u>T. Turek</u>		15

16:00 - 16:30 Coffee Break

16:30 - 18:30	Session I - 1	Chair: Geoff Kelsall	
	Feasibility of electro-assisted leaching of cathodes from spent lithium batteries – comparison with acid leaching P. Minois, A. Chagnes, <u>L. Svecova</u> , M.-O. Lupsea, P.-X. Thivel		120

	Electrochemical Ion Pumping for desalination and lithium recovery <u>D. Brogioli</u> , M. S. Palagonia, C. Erinmwingbovo, F. La Mantia	41
	Study of the hydrodynamic of electrochemical ion pumping for lithium recovery <u>M.S. Palagonia</u> , D. Brogioli, F. La Mantia	113
	Numerical analysis of the effect of diaphragm length, position and porosity on the electric field and mass transport inside a lithium electrolysis cell <u>E. Oliaii</u> , M. Désilets, G. Lantagneb	121
	Polymedicated patients: does electrolysis remove traces of different medicines from urine? S. Cotillas, <u>E. Lacasa</u> , C. Sáez, P. Cañizares, M. A. Rodrigo	36
	Innovative approach for the aeration of electrochemical reactors to produce hydrogen peroxide <u>J.F. Pérez</u> , J. Llanos, C. Sáez, I. Moraleda, C. López, P. Cañizares, M.A. Rodrigo	73

16:30 - 18:30	Session II - 4	Chair: Kemal Nisancioglu
	Commercial development of the Direct Carbon Fuel Cell for Low Emission Coal <u>J. A. Allen</u> , S. W. Donne	49
	Impact of operational voltage on the Pt surface area deterioration in high temperature PEM fuel cell <u>M. Prokop</u> , R. Kodým, T. Bystron, P. Belsky, M. Paidar, K. Bouzek	39
	A 3D dynamic mathematical model of Pt-based catalyst degradation in an industrial scale HT PEM fuel cell stack <u>M. Drakselová</u> , R. Kodým, D. Šnita, K. Bouzek	84
	Development of power management and air treatment system for PEM fuel cell based mobile APU <u>J. Mališ</u> , M. Paidar, K. Bouzek	45
	Effect of number of supercapacitors directly hybridized with PEMFC on the component contribution and the performance of the system <u>D. Arora</u> , K. Gérardin, S. Raël, C. Bonnet, F. Lapique	68
	High-efficiency in reverse electrodialysis - water electrolysis energy system <u>R. A. Tufa</u> , Jaromir Hnat, Joost Veerman, Willem van Baak, Efrem Curcio, Karel Bouzek	125

DAY 3, TUESDAY, JUNE 6, 2017

09:00 - 09:50		Chair: Kemal Nisancioglu	
Plenary Lecture	Electrokinetic Separations to Increase the Percent Solids of the Effluent from a Phosphate Mine <u>M. E. Orazem</u>		76

09:50 - 10:20 Coffee Break

10:20 - 13:00	Session I - 3	Chair: Henry Bergmann	
Keynote lecture	Solar photoelectro-Fenton treatment of a mixture of parabens spiked into secondary treated wastewater effluent using low input current <u>J. R. Steter, E. Brillas, I. Sirés</u>		71
	Endogenous hormones degradation under visible light on nanotubular oxide layer grown on TiW alloys using a photocatalytic cell <u>V. M. Kaminagakura, M. E. Oliveira, R. Bertazzoli, C. Ponce de León, C. A. Rodrigues</u>		100
	Electro-peroxone: a novel advanced oxidation process for the degradation of organic pollutants <u>E. Petrucci, I. Bavasso, L. Di Palma, D. Montanaro</u>		92
	A novel eletron-Fenton system based on the highly efficient hydrogen peroxide generation reactor <u>G. B. Ren, M. H. Zhou</u>		128
	Efficiency of DMSO as hydroxyl radical probe and study of the influence of current density by reactive oxygen species monitoring in an Electrochemical Advanced Oxidation Process <u>A. Abou Dalle, L. Domergue, F. Fourcade, A. A. Assadi, H. Djelal, T. Lendormi, S. Taha, A. Amrane</u>		42
	Electrochemical treatment of poly- and perfluoroalkyl substances (PFASs) from industrial effluents <u>A. Urriaga, B. Gómez-Ruiz, S. Gómez-Lavín, N. Diban, A. Colin, V. Boiteux, X. Dauchy</u>		16
	Voltammetric study of 6:2 FTSA oxidation using BDD electrodes <u>J. Carrillo-Abad, V. Pérez-Herranz, A. Urriaga</u>		33

10:20 - 13:00	Session II - 4	Chair: Mark Orazem	
	Electrochemical energy storage for renewable energy integration: zinc-air flow batteries <u>B. Amunátegui, M. Sierra, A. Ibáñez</u>		7
	Bifunctional air electrodes for zinc-air flow batteries <u>B. Pichler, L. Rešćec, V. Hacker</u>		129
	Iron air battery: design, construction and characterisation <u>H. Figueredo-Rodríguez, R. McKerracher, C. Ponce-de-León</u>		26
	Development of aluminium-ion battery with novel intercalation materials <u>R.D. McKerracher, A.W. Holland, R.G.A. Wills, A.J. Cruden</u>		13

11th European Symposium on Electrochemical Engineering, June 4-8, 2017, Prague

	A semi-empirical aging model for lithium iron phosphate electrode B. Rajabloo, W. Wakem, A. Jokar, <u>M. Désilets</u> , G. Briard	123
	Prediction of photo-anode current densities for modelling scaled-up photo-electrochemical reactors F.E. Bedoya Lora, A. Hankin, I. Gentle, <u>G.H. Kelsall</u>	98
	Doped hematite photoanodes for light assisted water electrolysis <u>J. Krýsa</u> , T. Kotrla, Š. Paušová, M. Zlámal, M. Neumann-Spallart	124
	Porous silicon electrochemically modified with polyaniline: effect of the preparation conditions on the photocurrent properties <u>S. Corgiolu</u> , A. Vacca, M. Mascia, S. Palmas, E. Sechi, L. Mais, M.V. Tiddia, G. Mula	58

13:00 - 14:20 Lunch

14:20 - 16:20	Session I - 3	Chair: Ignacio Sires	
	Integration of electrochemical oxidation and nanofiltration for a more efficient treatment of perfluorohexanoic acid <u>A. Soriano</u> , D. Gorri, A. Urriaga		23
	Visualisation of pH distribution in an electrocoagulation cell using laser scanning confocal microscopy B. Fuladpanjeh-Hojaghan, M. Trifkovic, <u>E.P.L. Roberts</u>		87
	Treatment of phosphate-containing waters: electrocoagulation or chemical coagulation? B. Lassoued, M. Le Page Mostefa, A. Attour, F. Zaghrouba, <u>F. Lapicque</u>		66
	Elimination of iron by electrocoagulation with Al electrodes: fundamental investigation of the lumped phenomena involved <u>A. Doggaz</u> , M. Le Page Mostefa, A. Attour, M. Tlili, F. Lapicque		67
	Model-based assessment of the influence of electrode and spacer channel design on desalination in a membrane capacitive deionisation cell <u>F. Kubanek</u> , U. Krewer		93
	Modelling the transport of ions and water dissociation in an electrodeionization process for As(V) removal <u>E. P. Rivero</u> , A. Ortega, M. R. Cruz-Díaz, F. A. Rodríguez, I. González		114

14:20 - 16:20	Session II - 6	Chair: Francois Lapicque	
Keynote lecture	Interpretation of CPE Parameters in Terms of Physically Meaningful System Properties <u>M. E. Orazem</u> , B. Tribollet, V. Vivier, M. Musiani, N. Pébère		77
	In-Situ Determination of Thickness and Electrochemical Properties of Oxide Film on Aluminium in Aqueous Solution N.-H. Giskeødegård, O. Hunderi, <u>K. Nisancioglu</u>		35
Keynote lecture	Immobilization of active molecules in nanostructured materials for multifunctional coatings J. Tedim, <u>M.G.S. Ferreira</u>		28
	Hydrogen embrittlement susceptibility test using weak alkaline solution for rebar in pre-stressed concrete <u>Y. Takeuchi</u> , T. Kamisho, M. Watanabe, T. Sawada		109

16:20 - 18:30	Poster Session with Walking Dinner	
	PEM water electrolysis: analysis of transport processes in the anodic porous transport layer <u>A. Zinser</u> , G. Papakonstantinou, K. Sundmacher	14
	Electrocatalytic hydrogenation of Cinnamaldehyde in a polymeric electrolyte membrane reactor M.J. Torres, A.R. De La Osa, <u>A. De Lucas-Consuegra</u> , J.L. Valverde, P. Sánchez	61
	Electrochemical behavior of fission products in pyro-electrochemical reduction process <u>S. M. Jeong</u> , M.W. Lee, B. H. Park	17
	Fabrication of SnO ₂ nanoparticle film and its application in photoelectrochemical anticorrosion for stainless steel J. Hu, Z. Guan, Y. Liang, H. Wang, <u>R. Du</u>	29
	Electro-chemical generation of hydrogen peroxide under pressure using carbon felt electrodes <u>J.F. Pérez</u> , O. Scialdone, B. Schiavo, S. Sabatino, C. Sáez, J. Llanos, C. López, P. Cañizares, M.A. Rodrigo	74
	The effect of bone char on electrokinetic removal of pyrene from polluted soil <u>A. Rezaee</u> , S. E. Hashemi	34
	Study of ceramic electrodes for the removal of antibiotics in wastewater <u>J. Mora</u> , M. García-Gabaldón, T. Droguett, E. Ortega, V. Pérez-Herranz, S. Mestre	57
	Degradation of the Reactive Black 5 by electrochemical oxidation using ceramic electrode T. Droguett, M. García-Gabaldón, J. Mora, <u>E. Ortega</u> , S. Mestre, V. Pérez-Herranz	65
	Degradation of levofloxacin in a solar photoelectro-Fenton flow plant in sulfate medium <u>I. Sirés</u> , E. Brillas, 1G. Coria, 1J. L. Nava	72
	Synthesys of WO ₃ -modified TiO ₂ nanotubes for photoelectrocatalytic oxidation of Methyl Orange <u>L. Mais</u> , S. Palmas, A. Vacca, M. Mascia, S.Corgiolu, E. Sechi	70
	On the discontinuous electrochemical chlorine formation for drinking water disinfection at low Re numbers <u>M.E.H. Bergmann</u>	40
	Electrochemical ammonia removal by chlorination and air stripping <u>M. Paidar</u> , M. Roubalík, O. Škorvan	111
	Analysis of fluid flow uniformity in the pilot-scale electrolysers as a representative of the electromembrane process unit with plate-&-frame configuration <u>R. Kodým</u> , M. Němeček, D. Šnita, K. Bouzek	115
	New reactor design for electrocoagulation using 3D electrodes: The Cartridge Type Electrocoagulation Reactor (CTECR) <u>D. Valero</u> , V. García-García, E. Expósito, V. Montiel	133

Mass-transfer measurements of 3D Pt-Ir/Ti Electrodes in a direct borohydride fuel cell by an Electrochemical Technique <u>A. Abahussain</u> , C. Ponce de León, F. C. Walsh	130
Study of electrolytes based on alkaline hydroxides for use in zinc-air fuel cells <u>O. Libánský</u> , J. Dundálek, J. Pociďč, J. Vrána, P. Mazúr, J. Kosek	81
Electrolytes for vanadium redox flow battery – production, characterization and stability <u>J. Charvát</u> , P. Mazúr, J. Pociďč, J. Vrána, J. Dundálek, J. Kosek	86
Monitoring the State of Charge of All-Vanadium Redox-Flow Batteries <u>C. Weidlich</u> , L. Holtz, K.-M. Mangold	79
Effect of pore size of porous glass membranes on the performance of vanadium redox flow batteries H. Mögelin, A. Barascu, S. Krenkel, S. Wassersleben, D. Enke, U. Kunz,	8
Ultra-low Pt catalyst and its application to ORR reaction <u>G. Park</u> , M. Choun, J. Lee	44
Evaluation of microbial fuel cells with graphite plus Co ₃ O ₄ paints as oxygen reduction cathode catalyst by using different producing methods and supports <u>B. Jiang</u> , T. Muddemann, U. Kunz	27
Controlled amino-functionalization of gold surfaces by electrochemical deposition of diazonium salts <u>S. Corgiolu</u> , A. Vacca, M. Mascia, S. Palmas, E. Sechi, L. Mais, C. Napoli, M. Barbaro	59
Tin electrodeposition on gold polycrystalline <u>D. Aranzales</u> , M. Koper, J. Wijenberg	134
Surfactant film voltammetry of bacterial and mammalian cytochromes P450 suggests tunable, film-dependent properties <u>A. K. Udit</u>	52
CO ₂ -conversion to Acids and Alcohols by Microbial Electrosynthesis <u>M. Haberbauer</u> , C. Hemmelmaier, S. Thallner, W. Schnitzhofer	118
Electrodeposited Cu-alloy films as catalysts for CO ₂ electroreduction <u>A. Hovestad</u> , R. Latsuzbaia, R.M. Meertens, E.L.V. Goetheer	82
Electrochemical reduction of CO ₂ to liquid fuels on a different metal-incorporated bi-phasic Cu ₂ O-Cu electrode <u>S. Lee</u> , J. Lee	43
Thermodynamic simulation of the H ₂ O-CO ₂ Co-Electrolysis in Solid Oxides Electrolysis Cell at High Temperatures <u>V. Miloš</u> , R. Kodým, P. Vágner ¹ , M. Paidar, K. Bouzek	117
The Influence of Deposition Variables on the Physical and Electrochemical Characteristics of Carbons Synthesised through the Electrolytic Reduction of Molten Carbonate Salts <u>M. Hughes</u> , <u>J. Allen</u> , S. Donne	50

	Electrochemical synthesis of ammonia from water and nitrogen under atmospheric pressure <u>H. Ch. Yoon</u> , Ch.-Y. Yoo, J. N. Kim, E. Y. Jung, H. Ch. Hee	119
	Relevant aspects in the stability performance of different anodic alumina (AAO) films in aqueous sulfate solutions <u>F. El-Taib Heikal</u>	132

DAY 4, WEDNESDAY, JUNE 7, 2017

09:00 - 09:50		Chair: Mario Ferreira	
Plenary Lecture	Electrochemical nano/micro fabrication and processing for functional structures, devices and materials - process development and mechanistic		106
	<u>T. Homma</u>		

09:50 - 10:20 Coffee Break

10:20 - 12:00	Session I - 3	Chair: Ane Urtiaga	
	Nickel hexacyanoferrate electrodes for cation intercalation desalination <u>S. Porada</u> , P. Bukowska, A. Shrivastava, P.M. Biesheuvel, K. C. Smith		80
	Overcoming mass transfer limitations by the simultaneous electro dialysis and electro-oxidation of 2,4-D <u>A. Raschitor</u> , J. Llanos, M. A. Rodrigo, P. Cañizares		64
	Boron doped diamond electrodes for degradation of pollutants and recovery of metals <u>C. Weidlich</u> , S. Hild, J. Schuster, K.-M. Mangold		78
	Improving the efficiency of electrolytic remediation processes through novel strategies for the preconcentration of pollutants M. Muñoz, <u>J. Llanos</u> , C. Sáez, P. Cañizares, M.A. Rodrigo		75
	Ferrates(VI) <u>J. Híveš</u> , K. Kerkeš, E. Kubiňáková		126

10:20 - 12:00	Session II - 1	Chair: Josef Krýsa	
	Kinetic modeling of the high temperature H ₂ O-CO ₂ Co-electrolysis <u>R. Kodým</u> , P. Vágner, M. Paidar, K. Bouzek		116
	An electrochemical reactor to reduce CO ₂ to valuable chemicals <u>C. I. Müller</u> , K. Ehelebe, B. Kieback, L. Röntzsch		110
	Electrochemical reduction of CO ₂ in aqueous media catalysed by copper-tin electrodes <u>S. Palmas</u> , L. Mais, A. Vacca, M. Mascia, E. Sechi, S. Corgiolu, F. Ferrara, A. Pettinau		69
	Electrochemical reduction of CO ₂ using Boron doped diamond electrodes in aqueous electrolytes <u>N. S. Romero</u> , K. Wiesner, W. Eisenreich, O. Hinrichsen, Y. Einaga, K. Nakata		9
	Production of organics compounds from CO ₂ photo-electroreduction using TiO ₂ nanotubes decorated with copper oxides nanoparticles <u>J. Almeida</u> , J. F. Brito, C. A. Rodrigues		95

12:40 - 13:00 Lunch

13:00 - 19:00 Excursion**20:00 - 23:00 Congress Dinner**

DAY 5, THURSDAY, JUNE 8, 2017

09:00 - 09:50		Chair: Geoff Kelsall	
Plenary Lecture	Gas diffusion electrodes in electrolysis - from chlorine manufacturing today to production of other chemicals tomorrow <u>J. Kintrup</u>		107

09:50 - 10:20 Coffee Break

10:20 - 11:20	Carl Wagner Medal Award presentations	Chair: Karel Bouzek	
Plenary Lecture	Integrated microbial fuel cell - supercapacitor systems <u>C. Santoro</u> , F. Soavi, C. Arbizzani, A. Serov, P. Atanassov		104
Plenary Lecture	Immobilizing active species in functional coatings: challenges and opportunities <u>J. Tedim</u>		136

11:30 - 12:50	Session I - 7	Chair: Ján Hives	
	Step potential electrochemical spectroscopy (SPECS): A novel way of examining the electrochemical characteristics of materials <u>M. Hughes</u> , <u>J. Allen</u> , S. Donne		51
	The role of electrodeposited Cu/In/Ga precursors film morphology and interdiffusion in thin film Cu(In,Ga)Se ₂ solar cell production <u>A. Hovestad</u> , H. Rendering, É.S.F. Le Calvé		83
	Anion selective polymer electrolytes with DABCO functional groups for advanced alkaline water electrolysis <u>J. Hnat</u> , M. Plevova, J. Zitka, M. Paidar, K. Bouzek		56
	Electrical conductivity of low temperature multicomponent cryolite based electrolytes <u>E. Kubiňáková</u> , J. Híveš, V. Danielik		127

11:30 - 12:50	Session II - 5	Chair: Claudia Weidlich	
	Removal of organochlorinated species from soil by combined biological and electrochemical processes <u>S. Barba</u> , B. Carboneras, J. Villaseñor, F. J. Fernández, P. Cañizares, M. A. Rodrigo		38
	Investigation of metabolic pathways in a microbial fuel cell via process engineering methods <u>F. Kubanek</u> , U. Krewer		91
	Bioelectrode performance based on formate dehydrogenase immobilization onto mesoporous carbons for CO ₂ electrochemical reduction <u>N. Hernández-Ibáñez</u> , A. Gomis-Berenguer, C. O. Ania, V. Montiel, J. Iniesta		46
	Optimization of the cell for capacitive deionization <u>A. Giurg</u> , M. Paidar, O. Škorvan		55

12:50 - 13:20 Closing Ceremony

13:20 - 14:20 Lunch