

Workshop

Venue: Newcastle Civic Centre, Barras Bridge, Newcastle upon Tyne, NE1 8QH

Wednesday 12 th September 2018		
09:00-10:00	Workshop Registration	Venue: Entrance Hall
10:00-13:20	Workshop Chair: Jean-Marie Fontmorin	Venue: Council Chamber
10:00-11:00	▶ W1: Techniques and tools for characterization of bioelectrochemical systems <i>Annemiek ter Heijne (Wageningen University)</i>	
11:00-11:20	Coffee Break	Venue: 1 st Floor Hallway
11:20-12:20	▶ W2: Electromicrobiology of Diverse Microbial Biofilms <i>Yuri Gorby (Rensselaer Polytechnic Institute)</i> Venue: Council Chamber	
12:20-13:20	▶ W3: Microbial Electrochemical Technologies: reality and viability <i>Tom Curtis & Elizabeth Heidrich (Newcastle University)</i>	
13:20-14:00	Lunch for Workshop participants	Venue: 1 st Floor Hallway

Meeting Programme

Venue: Newcastle Civic Centre, Barras Bridge, Newcastle upon Tyne, NE1 8QH

Wednesday 12 th September 2018		
09:00-10:00	Workshop Registration	Venue: Entrance Hall
10:00-14:00	Workshop Chair: Jean-Marie Fontmorin	Venue: Council Chamber
12:00-14:00	Conference Registration & Posters Installation	Venue: Entrance Hall
14:00-14:20	Welcome session Chair: Eileen Yu	Venue: Banqueting Hall
14:20-15:00	Plenary: Wastewater treatment and sediment remediation using Microbial electrochemical systems <i>Yujie Feng (Harbin Institute of Technology)</i> Venue: Banqueting Hall	
15:00-16:40	Parallel Sessions	
	Session I: Fundamentals of the extracellular electron transfer processes Chair: Pierangela Cristiani Venue: Banqueting Hall	
15:00-15:20	▶ OP01: Methanobacterium Eha and Ehb hydrogenases do not participate in electrode-to-cell electron flow <i>Elisabet Perona-Vico (University of Girona)</i>	
15:20-15:40	▶ OP02: I do it my way-an unusual mechanism of electron uptake in a methanogen <i>Florian Mayer (DECHEMA Research Institute)</i>	
15:40-16:00	▶ OP03: Visualization of the Electron Transfer Pathways of Geobacter sulfurreducens with Cyclic Voltammetry <i>Hilke Wichmann (Technische Universität Braunschweig)</i>	

16:00-16:20	▶ OP04: Exploration of the electron uptake mechanism of a new <i>Shewanella</i> isolate capable of oxidizing metallic iron with fumarate as electron acceptor <i>Jo Philips (Ghent University)</i>	
16:20-16:40	▶ OP05: Where do flavins in electro-fermentations with <i>Clostridium acetobutylicum</i> come from? <i>Mareike Engel (University of Kaiserslautern)</i>	
Session 3: Current and emerging application of Microbial Electrochemical Technology (MET)		
Chair: Annemiek ter Heijne		Venue: Council Chamber
15:00-15:20	▶ OP06: Bioelectrochemical nitrogen fixation (e-BNF) towards the electrosynthesis of biomass <i>Andrea Schievano (Università degli Studi di Milano)</i>	
15:20-15:40	▶ OP07: <i>Pseudomonas putida</i> as anodic biosynthesis platform for targeted and controllable biochemical production <i>Bin Lai (Helmholtz Centre for Environmental Research – UFZ)</i>	
15:40-16:00	▶ OP08: Spark for life: electroactivity as primary energy mechanism for deep hydrothermal chimney colonization <i>Guillaume Pillot (Aix Marseille Université)</i>	
16:00-16:20	▶ OP09: Comparison of two sustainable counter electrodes for energy storage in the microbial rechargeable battery <i>Tom Sleutel (Wetsus)</i>	
16:20-16:40	▶ OP10: Bio-electrochemical removal of organics acids for regenerative life support systems in space <i>Korneel Rabaey (Ghent University)</i>	
16:40-17:10	Coffee Break & Posters	Venue: Entrance Hall & Pandom Room
17:10-17:50	Plenary: Four challenges for scaling up microbial electrochemical technologies, and performance results for an 85 litre microbial fuel cell treating domestic wastewater <i>Bruce Logan (Pennsylvania State University)</i>	Chair: Martin Spurr Venue: Banqueting Hall
17:50-18:50	Nomenclature Discussion <i>S. Strycharz-Glaven (chair), K. Rabaey, L. Angenent, U. Schröder, F. Harnisch</i>	Venue: Banqueting Hall
19:00-20:00	Welcome Reception & Posters	Venue: Entrance Hall & Pandom Room

Thursday 13th September 2018

08:30-09:00	Registration open	Venue: Entrance Hall
09:00-09:40	Plenary: Protein Nanowires: Novel Sensing and Energy Generation Applications <i>Derek Lovley (UMass Amherst)</i>	Chair: Sarah Strycharz-Glaven Venue: Banqueting Hall
09:40-11:00	Parallel Sessions	
	Session 5: Microbial interactions in bioelectrochemical systems (BES)	Chair: Sarah Strycharz-Glaven Venue: Banqueting Hall
09:40-10:00	▶ OPI 1: Simulation of an anodic chamber and effect of its composition over microbial fuel cell performance	

Edwin Chingate (Universidad Nacional de Colombia)

10:00-10:20 ▶ OPI2: A core-microbiome approach to identify key microbes and interactions in bioanode microbial communities

Elie Desmond-Le Quéméner (Université de Montpellier, INRA)

10:20-10:40 ▶ OPI3: Biofilm visualization on single granular bio-anodes with Magnetic Resonance Imaging

Leire Caizán-Juanarena (Wageningen University)

10:40-11:00 ▶ OPI4: *Shewanella oneidensis*-MRI and *Pseudomonas aeruginosa* PA1430/COI anodic consortium to sustain CO₂ capture in Bioelectrochemical Systems (BESs)

Rosa Anna Nastro (University of Surrey)

Session 4: Microbial electrochemical synthesis

Chair: Cees Buisman

Venue: Council Chamber

09:40-10:00 ▶ OPI5: Insights into the effect of a biocathode on driving mixed-culture fermentations under low electron recovery

Alberte Regueira (Universidade de Santiago de Compostela)

10:00-10:20 ▶ OPI6: Microbial electrosynthesis of chiral alcohols using resting recombinant *Escherichia coli* cells

Antje Spiess (TU Braunschweig)

10:20-10:40 ▶ OPI7: Low operating pH triggers the production of medium-chain carboxylates during microbial electrosynthesis

Bernardino Virdis (The University of Queensland)

10:40-11:00 ▶ OPI8: Microbial Electrosynthesis from CO₂ is Resilient to Fluctuations in Renewable Energy Supply

Raul Mateos (Universidad de Leon)

11:00-11:30 **Coffee Break & Posters**

Venue: Entrance Hall & Pandom Room

11:30-13:10

Parallel Sessions

Session I: Fundamentals of the extracellular electron transfer processes

Chair: Falk Harnisch

Venue: Banqueting Hall

11:30-11:50 ▶ OPI9: Phenazines-vehicles to broadband electroactivity

Miriam Rosenbaum (Leibniz Institute for Natural Product Research and Infection Biology)

11:50-12:10 ▶ OP20: Comparison studies of genetic foundation for heterologous production of phenazines in *Pseudomonas putida* KT2440

Theresia Desy Askitosari (RWTH Aachen)

12:10-12:30 ▶ OP21: Biochar as a Biosnorkel: Direct Extracellular Electron Transfer by Biochar

Tianran Sun (University of Tuebingen)

12:30-12:50 ▶ OP22: Increased microbe-electrode-electron transfer by tailored periplasmic protein content

Veronica Palma Delgado (Karlsruhe Institute of Technology)

12:50-13:10 ▶ OP23: Distilling the essence of extracellular electron transfer from bed electrodes: Single granule's electrochemistry

Jose Rodrigo Quejigo (Helmholtz Centre for Environmental Research - UFZ)

Session 2: Bioelectrochemical reactor design and materials

Chair: Elizabeth Heidrich

Venue: Council Chamber

11:30-11:50 ▶ OP24: The Influence of Micrometer-scale Electrode Surface Topography on the Growth and Performance of Microbial Electroactive Biofilms
Christopher W. F. Moß (TU Braunschweig)

11:50-12:10 ▶ OP25: Mass producible and scalable graphite-cellulose composites as bioanodes for microbial electrochemical technologies
Diana Yomalli Alvarez Esquivel (TU Braunschweig)

12:10-12:30 ▶ OP26: Numerical modeling and experimental approach to design a 3D architecture of anode optimized for wastewater microbial electrolysis cell applications
Emma Roubaud (Université de Toulouse)

12:30-12:50 ▶ OP27: Dynamic modelling of tubular BES to investigate the influence operating parameters and reactor design on system performance.
Iain Michie (University of South Wales)

12:50-13:10 ▶ OP28: Influence of Inaccessible Porosity of Activated Expanded Graphite Electrodes on the Electroactivity of *Geobacter sulfurreducens*
Marina Ramirez-Moreno (IMDEA-Agua)

13:10-14:20 **Lunch & Posters**

Venue: Entrance Hall & Pandom Room

14:20-15:00 **Plenary:** Multiscale travel in the microbial electrochemical world with a chemical engineering passport
Alain Bergel (Université de Toulouse)

Chair: Lars Angenent

Venue: Banqueting Hall

15:00-16:20

Parallel Sessions

Session 4: Microbial electrochemical synthesis

Chair: Lars Angenent

Venue: Banqueting Hall

15:00-15:20 ▶ OP29: An electrolytic hydrogen bubbling column reactor for high rate microbial electrosynthesis of acetate from CO₂
Kun Guo (Ghent University)

15:20-15:40 ▶ OP30: Effects of the poised potential on Microbial electrosynthesis (MES) for conversion of CO₂ to acetate
Paniz Izadi (Newcastle University)

15:40-16:00 ▶ OP31: Bioelectrochemical carbon dioxide conversion into a suitable substrate for chain elongation
Ramiro Blasco-Gómez (University of Girona)

16:00-16:20 ▶ OP32: The clash of CO₂ calling-A secondary MET for the conversion of CO₂
Richard Hegner (Helmholtz Centre for Environmental Research - UFZ)

Session 7: Water treatment, bioremediation and resource recovery from waste

Chair: Lars Peter Nielsen

Venue: Council Chamber

15:00-15:20 ▶ OP33: Enhancing the bioelectrochemical treatment of acid mine drainage via microbial electrosynthesis
Mira Sulonen (Universitat Autònoma de Barcelona)

15:20-15:40 ▶ OP34: BIORARE cell: a new possibility for organic waste biorefinery
Jianghao Tian (IRSTEA)

15:40-16:00	▶ OP35: Degradation of azo dyes (Acid orange 7) in a microbial fuel cell: comparison between anodic microbial-mediated reduction and cathodic laccase-mediated oxidation <i>Godfrey Kyazze (University of Westminster)</i>	
16:00-16:20	▶ OP36: Zinc removal from industrial wastewater using bioelectrochemical systems <i>Swee Su Lim (Newcastle University)</i>	
16:20-16:50	Coffee Break & Posters	Venue: Entrance Hall & Pandom Room
16:50-17:30	Plenary: Microbial Fuel Cells – A Platform Technology <i>Ioannis Ieropoulos (UWE Bristol)</i> Chair: Jean-Marie Fontmorin	Venue: Banqueting Hall
17:30-18:30	Round Table <i>B. Logan (chair), D. Lovley, K. Rabaey, L. Angenent, S. Strycharz-Glaven, Y. Feng</i>	Venue: Banqueting Hall
19:15-20:00	Pre-Dinner Drinks Venue: <u>Wylam Brewery</u> , Palace of Arts Exhibition Park, Claremont Road, Newcastle upon Tyne, NE2 4PZ	
20:00-23:00	Conference Dinner Venue: <u>Wylam Brewery</u>	

Friday 14th September 2018		
08:30-09:00	Registration open	Venue: Entrance Hall
09:00-09:40	Plenary: Being a cable bacterium <i>Lars Peter Nielsen (Aarhus University)</i> Chair: Alain Bergel	Venue: Banqueting Hall
09:40-11:00	Parallel Sessions	
	Session 7: Water treatment, bioremediation and resource recovery from waste	
	Chair: Alain Bergel	Venue: Banqueting Hall
09:40-10:00	▶ OP37: Microbial recycling cells (MRCs): Coupling novel air cathodes and electrochemical biofilters for nutrients recovery from food-industry wastewater <i>Andrea Goglio (Università degli Studi di Milano)</i>	
10:00-10:20	▶ OP38: Nitrogen recovery from reject water in a 3-chamber bioelectroconcentration cell <i>Veera Koskue (Tampere University of Technology)</i>	
10:20-10:40	▶ OP39: Anodic biofilm adaptation to high ammonium concentration: a critical step towards nitrogen recovery from blackwater by means of bioelectrochemical systems <i>Eduard Borràs (LEITAT Technological Center)</i>	
10:40-11:00	▶ OP40: Anaerobic toluene degradation and exoelectrogenic activity by <i>Cupriavidus metallidurans</i> CH34 in Bioelectrochemical Systems <i>Anna Espinoza (Università degli Studi di Milano-Bicocca)</i>	
	Session 8: Commercialisation, scale-up of MET (including LCA)	
	Chair: Bruce Logan	Venue: Council Chamber

09:40-10:00	▶ OP41: Towards a scaled-up power-to-gas BES prototype as a novel energy storage solution <i>Daniele Molognoni (LEITAT Technological Center)</i>	
10:00-10:20	▶ OP42: We can work it out: Upgrading bioreactors for microbial electrosynthesis <i>Luis Rosa (Helmholtz Centre for Environmental Research)</i>	
10:20-10:40	▶ OP43: GSERT: A bespoke software for the sustainability assessment of bioelectrochemical systems <i>Mobolaji Shemfe (University of Surrey)</i>	
10:40-11:00	▶ OP44: Full scale commercial applications of Plant-MFCs: the green electricity experience <i>Pim De Jager (Wageningen University)</i>	
11:00-11:30	Coffee Break & Posters	Venue: Entrance Hall & Pandom Room
11:30-13:10	Parallel Sessions	
	Session 6: Microbial Electrochemical Technology (MET) based sensor technology	Chair: Bernardino Virdis Venue: Banqueting Hall
11:30-11:50	▶ OP45: An Oxygen Reducing Microbial Cathode Monitoring Toxic Compounds in Freshwater <i>Antonin PrévotEAU (Ghent University)</i>	
11:50-12:10	▶ OP46: Swift Acid Rain Sensing By Synergistic Rhizospheric Bioelectrochemical Responses <i>Tian Li (Nankai University)</i>	
12:10-12:30	▶ OP47: Experiences operating Bioelectrochemical System Sensors on a Real-world Wastewater Treatment Site <i>Martin Spurr (Newcastle University)</i>	
12:30-12:50	▶ OP48: Bioelectrochemical systems serve anaerobic digestion process for process monitoring and biogas upgrading <i>Yifeng Zhang (Technical University of Denmark)</i>	
12:50-13:10	▶ OP49: Manufacturing microbial fuel cell sensors from low-cost and biodegradable materials <i>Mirella Di Lorenzo (University of Bath)</i>	
	Session 2: Bioelectrochemical reactor design and materials	Chair: Yujie Feng Venue: Council Chamber
11:30-11:50	▶ OP50: Boosting the Performance of Air Breathing Microbial Fuel Cells with Nanoceria <i>Pierangela Cristiani (Ricerca sul Sistema Energetico)</i>	
11:50-12:10	▶ OP51: Towards a more sustainable treatment of urban wastewaters with biomass-derived carbon biofilters <i>Raúl Berenguer (Universidad de Alicante)</i>	
12:10-12:30	▶ OP52: e-Biochar: Electroactive Biocharcoal-based Electrodes for Bioelectrochemical Systems <i>Andrea Schievano (Università degli Studi di Milano)</i>	
12:30-12:50	▶ OP53: Integral valorization of organic waste streams through BES. Assessing membrane deterioration and anodic biofilm stratification <i>María Isabel San-Martín (Universidad de León)</i>	

12:50-13:10	▶ OP54: A novel polymer derived ceramic composite membrane for high performance Microbial Fuel Cell (MFC) <i>Vignesh Ahilan (University of Bremen)</i>		
13:10-14:20	Lunch & Posters		Venue: Entrance Hall & Pandom Room
14:20-15:00	Plenary: Recovery of carbon, phosphate, nitrogen and sulphur from waste water <i>Cees Buisman (Wageningen University)</i>		
		Chair: Mirella Di Lorenzo	Venue: Banqueting Hall
15:00-16:20	Parallel Sessions		
	Session 7: Water treatment, bioremediation and resource recovery from waste		
		Chair: Mirella Di Lorenzo	Venue: Banqueting Hall
15:00-15:20	▶ OP55: Control Strategies to Reduce Copper in Distillery Waste using Bioelectrochemical System and Modify the Characteristics of the Plating <i>Amandeep Kaur (University of South Wales)</i>		
15:20-15:40	▶ OP56: Microbial electrochemistry approach for treating swine manure <i>Amanda Prado de Nicolás (Universidad de Alcalá)</i>		
15:40-16:00	▶ OP57: Microbial Electrochemical Snorkel for Removing Nitrate from a Real Polluted Environment in Mar Menor (Spain) <i>Andrés de Deus (Universidad de Alcalá)</i>		
16:00-16:20	▶ OP58: Electrobioremediation of crude oil-contaminated marine sediments: results of a long-term, mesocosm-scale experiment <i>Carolina Cruz Viggí (Water Research Institute – CNR)</i>		
	Session 9: General session		
		Chair: Sharon Velasquez Orta	Venue: Council Chamber
15:00-15:20	▶ OP59: Capacitive Moving Bed Reactor: a flow bioanode towards upscaling <i>Casper Borsje (Wetsus & Wageningen University)</i>		
15:20-15:40	▶ OP60: Development of photoelectrocatalytic-microbial fuel cell for hydrogen generation and pollutants removal <i>Hexing Han (University of Science and Technology of China)</i>		
15:40-16:00	▶ OP61: Amperometric herbicide biosensor based on photocurrent inhibition of <i>Anabaena variabilis</i> <i>Matteo Tucci (Università degli Studi di Milano)</i>		
16:00-16:20	▶ OP62: Approaching bioelectrochemical systems to real facilities within the framework of CO ₂ valorization and biogas upgrading <i>Laura Rovira Alsina (University of Girona)</i>		
16:20-16:50	Coffee Break		Venue: Entrance Hall & Pandom Room
16:50-17:30	Plenary: Scaling microbial actions to architectural dimensions: The Living Architecture project <i>Rachel Armstrong (Newcastle University)</i>		
		Chair: Ian Head	Venue: Banqueting Hall
17:30-17:50	Closing Ceremony		Venue: Banqueting Hall
18:00	Meeting close		