QUEEN'S UNIVERSITY BELFAST

SCHOOL OF CHEMISTRY AND CHEMICAL ENGINEERING



2022 Early Career Researcher Regional Symposium on Electrochemistry

David Keir Building, QUB

4th November 2022

RSC INTEREST GROUP ELECTROCHEMISTRY

INTERNATIONAL SOCIETY OF ELECTROCHEMISTRY ISE

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David Keir Building (DKB),

39-123 Stranmillis Rd, Belfast BT9 5AG





Please enter DKB through the Stranmillis Road entrance and follow directions to DKB/OG/012.

Programme

Morning session **Venue: DKB/OG/012**

9.00	**Registration – Tea, Coffee, Refreshments**	
9.40	Welcome	
	Chair: Scott Place	
9.50	**Keynote Lecture:** Recent trends on electrochemical applications of 2D materials ranging from structural supercapacitors and electrolysers to skin biosensors	Prof. Pagona Papakonstantinou (UU)
10.40	Electrode and Electrolyte Materials for Thin Film Microbatteries	Aaron O'Donoghue (Tyndall / UCC)
11.00	Studying the Effect of Surfactants on the Capacitive behaviour of PEDOT-Carbon Nanotubes composites	Nicolás Rojas-Sanabria (UL)
11.20	**Tea/Coffee Break & Networking**	
	Chair: Ehren Dixon	
11.40	Photo/electrochemical generation of hydroxyl radical, superoxide and hydrogen peroxide for disinfection	Stuart McMichael (UU)
12.00	CO2 recycling in 3-D printed three-chamber bio-electrosynthesis cells at moderate saline conditions	Santiago Martinez Sosa (UoGalway)
12.20	Photoactive Films of Poly(3-hexylthiophene) Synthesised at an Electrified Liquid-Liquid Interface	Nataly Rey-Munoz (UL)
12.40	Non-Stoichiometric Protic Ionic Liquid Electrolytes	Courtney Quinn (QUB / UoNottingham)
13.00	**Lunch / Group Photo**	

Afternoon sessions will run in parallel

Electrochemical Energy Storage & Conversion		Venue: DKB/OG/012
	Chair: Josh Bailey	
13.50	High performance composite TiO2/GeO2 inverse opal for lithium-ion battery electrodes	Aoife Carroll (UCC)
14.10	Operando Raman Spectroscopy of Phase Changes in Nanocrystalline Lithium-ion Battery Electrodes	Alex Grant (UCC)
14.30	A Full Function Solid Oxide Fuel Cell (SOFC) semi-empirical modelling and its multi-fuel behaviour based on a 700 W commercial stack	Junhan Cheng (QUB)
14.50	Biomass Derived Carbon-Based Materials as Electrocatalyst Support for Fuel cell Applications, a Glance	Rupa Kasturi Palanisamya (UoMaynooth)
15.10	Simultaneous removal of sulfide and bicarbonate using an algae-assisted Microbial Fuel Cell	Amitap Khandelwal (UoGalway)
15.30	**Tea/Coffee Break**	
	Chair: Nataly Rey-Munoz	
15.50	Alternative Chemistries for next-generation redox flow batteries	Josh Bailey (QUB)
16.10	Improved redox flow Battery cell design for enhanced reactant distribution	Hugh O'Connor (QUB)
16.30	Measuring the State of Charge of Vanadium Flow Batteries	Maria Rybalchenko (UL)
16.50	Influence of Electrochemical Treatment and Electrolyte pH on the Kinetics at Carbon Electrodes in Vanadium Flow Batteries	Varsha Sasikumar S.P (UL)
17.10-17.30	**Final Engagement & Close (DKB/OG/012)**	
17.30	**Student Union Bar (2nd Floor, Student Union Building)**	

Electrochemical Sensors		**Venue: DKB/01/028**
	Chair: Andres Quintero-Jaime	
13.50	Rapid Ethidium Bromide detection using Ultramicroelectrode Sensors	Marcello Valente (Tyndall / UCC)
14.10	Aprotic Solvent Accumulation Amplifies Ion-Current Rectification in Conical Nanopores	Emer Farrell (UCD)
14.30	Development of An Electrochemical Biosensor for the Detection of Triglycerides Enhanced with Generator-Collector Mode	Colm Barrett (Tyndall / UCC)
14.50	Rapid and Oxygen-Insensitive Electrochemical Immunoassay for Detection and Staging of Prostate Cancer using 3D printed chip	Tanushree Mandal (UoGalway)
15.10	Electroanalytical methods for forensic evaluation of evidence generated from firearm discharge	Colm McKeever (UoMaynooth)
15.30	**Tea/Coffee Break**	
	Chair: Colm McKeever	
15.50	Fabrication of Nanoporous Copper for Detection of Agri-Pollutants.	Ehren Dixon (Tyndall / UCC)
16.10	Mn incorporated CaWO4 Nanocrystals for Low-Overpotential Non-Enzymatic Glucose Sensing	Levente Nagy (UoGalway)
16.30	Optimisation of Electrochemical Properties of Laser Induced Graphene Based Disposable Paper Biosensors	Gourav Bhattacharya (UU)
17.10-17.30	**Final Engagement & Close (DKB/OG/012)**	
17.30	**Student Union Bar (2nd Floor, Student Union Building)**	

Posters

Prepare your poster and upload to Twitter from 12 pm (Irish time) on the 3rd of Nov. (day before symposium) In the tweet, please include the title of the poster, the hashtag #ISERSCIrish22Poster and @brownm26 and @echemIRL.

1	Electrochemical-based pH control for milk analysis	Kathleen Kennedy (Tyndall / UCC)
2	Enhanced performance of glucose sensor using epoxide cross linkers	Reshma Kidayaveettil (UoGalway)
3	Sugar Electroanalysis using an Electrochemical Indicator Displacement Assay Based on Alizarin Red	Athira Tomy (UoMaynooth)
4	Free-standing CNT@PEDOT nanocomposite thin films at a polarized liquid|liquid interface for flexible supercapacitor devices	Andrés Quintero (UL)
5	Alluaudite Na-Fe-sulphate as a Na-ion battery cathode	Marina Moraes Leite (UL)
6	Lignin-DERIVED TAILORED porous carbon for SUPERCAPACITOR APPLICATIONS	Muhammad Muddasar (UL)
7	Two-dimensional MoS2 and MoSe2 nanosheets as efficient materials in the development of electrochemical sensors for pharmaceutical drugs in aquatic environments	Tara Barwa / Yiran Luo (UoMaynooth)
8	SnSb as a Binder Free Anode Material for Sodium-Ion Batteries Enabled by High Concentration Electrolyte	Stephen O'Sullivan (UL)
9	The application of an electroanalytical technique for monitoring the photocatalytic degradation of the pesticide MCPA	Wesley McCormick (ATU Donegal / QUB)
10	Anodic oxidation in electrodialysis for antibiotics and oestrogen removal during nutrient recovery from anaerobic digestate	Jizhong Meng (UoGalway)
11	Ultrasensitive Electrochemical Detection of the Alzheimer Disease Biomarker miR-206 in Human Plasma	Amanda Carrico (DCU)

Oral and poster abstracts can be accessed here:

https://tinyurl.com/bdetfs88

Link expires 30th November 2022

Notes