

School of Chemical and Process Engineering PGR–Industry Days

Tuesday 13 – Wednesday 14 January 2026

Programme

Tuesday 13 January 2026		
10:00 – 10:30	Registration for lab tour at 10:30 SCAPE Foyer Lab tour to visit: Digital Manufacturing and Products, Energy Transition and Net Zero, Materials for Sustainable Future, Bragg Centre and Institute for Process Research and Development	
11:00 – 11:30	Registration for lab tour at 11:30 SCAPE Foyer Lab tour to visit: Digital Manufacturing and Products and Energy Transition and Net Zero	
12:00 – 13:00	Registration (SCAPE Foyer) and lunch (Room 4.06)	
13:00 – 13:10	Welcome and introduction Professor Rik Drummond Brydson, Director of Research and Innovation SCAPE Lecture Theatre B	
13:10 – 13:35	Introduction to Digital Manufacturing and Products Professor Sven Schroeder Theme lead SCAPE Lecture Theatre B	
	Flash Presentations:	
digiMan01	Use of Deep Learning for the prediction of Triboelectrification in Powders	<i>Louis Buxton</i>
digiMan02	Integrated Self-Optimisation of Active Pharmaceutical Ingredient Synthesis and Crystallisation using Machine Learning	<i>Rohan Shetty</i>
digiMan03	Using carbonate-based nanofluids in an integrated heat pump-thermal energy storage system for providing sustainable domestic heating	<i>Aashir Zaheer</i>
digiMan04	Machine Learning Driven Transfer Learning for Reaction Screening and Optimisation in Continuous Flow	<i>Schaumiya Suresh</i>
digiMan05	Efflorescence of sodium chloride-mucin systems: A step towards understanding crystallization in respiratory aerosols	<i>Faizan Ahmad</i>
digiMan06	The Impact of Particle Surface Chemistry on Product Manufacturability	<i>Andrew Britton</i>
13:35 – 14:00	Introduction to Energy Transition and Net Zero Associate Professor Andrew Ross, Theme lead SCAPE Lecture Theatre B	
	Flash Presentations	
ETNZ01	Valorisation of asphaltenes for carbon-based electrocatalysis	<i>Bader Alarbeed</i>
ETNZ02	Techno-Economic Model of Technology Pathways for Decarbonisation of Process Heat in the GB Brewing Industry	<i>Samual Birch</i>
ETNZ03	Screening Polymer Conformation in High-Salinity Fluids Using QCM-D	<i>Amir Alhajri</i>
ETNZ04	Effects of Hydrogen Substitution on Emission Formation in an NH ₃ /Diesel Dual-Fuel Engine	<i>Zhaolin Li</i>
ETNZ05	Functional Thin Film Coatings Design and Optimisation Based on the Wear and Corrosion Mechanisms for the Next Generation of Nuclear Reactors	<i>Joshua Feast</i>
ETNZ06	Techno-Economic and Environmental Assessment of Green Ammonia Synthesis Under Varying Pressure and Temperature	<i>Salem Alsaedi</i>
ETNZ07	Sewage sludge treatment re-imagined	<i>Paul Heierman-Rix</i>
ETNZ08	Carbon Phosphonation as a way to cheaply and easily adsorb Sr	<i>Michael Wahnnon</i>
ETNZ09	A Comparison of the Baseline Thermal Characteristics and Composition of Hydrochar and Pyrochar from Faecal Sludge and Water Hyacinth.	<i>Flora Chitalu</i>
ETNZ10	A comparison of pre-treatment approaches for enhancing the biogas yield from water hyacinth	<i>Betul Esen</i>

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Tuesday 13 January 2026 continued		
14:00 -14:25	Introduction of Materials for Sustainable Future. SCAPE Lecture Theatre B Professor Gin Jose theme lead	
	Flash Presentations:	
M4SF01	Investigating Semiconductor Materials using 4D Scanning Transmission Electron Microscopy (4DSTEM)	<i>Tiantian Chai</i>
M4SF03	Saponin-Stabilised Interfaces for CO ₂ Foam Applications	<i>Abrar Albahri</i>
M4SF04	Modular intensified ion exchange utilising agitated tubular reactors	<i>Stephen Donegan</i>
M4SF05	Arc Welder based Synthesis of Graphene for Polymer Nanocomposite Applications As a Cost-Effective Alternative to the Flash Joule Heating Method	<i>Armin Gholizadeh</i>
M4SF06	Phase and Orientation Mapping of Topological Thin Film Heterostructure using 4D-STEM	<i>Ben Muggleton</i>
M4SF07	Understanding the Effects of Protein Hydration Kinetics on Their Functional Properties and Product Performance	<i>Connor Kirk</i>
M4SF08	Timing is Everything: Induction Time in Cerium Oxalate Precipitation	<i>Dragan Matijevic</i>
M4SF09	Upgrading of Biogas using Ex-situ Biochar Immobilised Bioreactor Approaches	<i>Munira Alateeqi</i>
M4SF10	Influence of HMDSO/O ₂ Ratio on SiO _x Films: Composition and Property Insights from ERDA	<i>Atreya Danturthi</i>
14:25 – 15:00	digIMP Research Presentations, Chair: Dr Clarissa Wilding SCAPE Lecture Theatre B	
	Mechanistic Modelling of Drying Processes	<i>Nicholas McCarthy</i>
	Smart continuous polymeric nanoparticle manufacturing	<i>Kudakwashe Chingono</i>
	Development of a New Particle Charge Classifying Chamber	<i>Wei Goh</i>
15:00 - 15:35	Refreshments, networking and posters <i>Room 4.06 and 4.07</i>	
15:35 – 16:10	ETNZ Research Presentations Parallel Session – Lecture Theatre B Chair: Dr Alastair Baker	M4SF Research Presentations Parallel Session – Lecture Theatre C Chair: Dr Dina Abdulaziz
	Sustainable Pathways for Valorising Invasive Sargassum in an Integrated Biorefinery <i>Ryan Longley</i>	Low-Dose Scanning Transmission Electron Microscopy of Beam-Sensitive Materials <i>Natalia Koniuch</i>
	Development of a three-phase chemical extraction system for advanced hydrometallurgical and nuclear applications <i>Thomas Robshaw</i>	Reinventing Coatings for Sustainable Flexible Packaging. <i>Matthew Creswick</i>
	Low Carbon Fuels and Emissions Control for Compression Ignition Engines <i>Scott Wiseman</i>	Miniaturising Emulsion System Analysis <i>Matthew Simmons</i>
16:10 – 17:00	Industry – PGR Forum, <i>Lecture Theatre B</i> Professor Rik Drummond Brydson Professor Pete Dowding, Infineum, Chair of the Industrial advisory board	
17:00 - 19:00	Networking buffet and posters. <i>Room 4.06 and 4.07</i>	
19:00	<i>Drinks in The Library (optional)</i>	

Wednesday 14 January 2026		
09:15 – 09:30	<i>Registration for Day 2</i>	
09:30 – 10:00	Welcome, and EPS and UoL research perspective, Professor Cath Noakes. Lecture Theatre B	
	Digital Manufacturing and Products Parallel Session – Lecture Theatre B Chair: Dr Jonathan Guld	Energy Transition and Net Zero Parallel Session – Lecture Theatre C Chair: Dr Christian Michelbach
10:00 – 10:15	Heterogeneous dissolved gas reactions <i>Sophie Graham</i>	Enhanced production of high value BTEX aromatic hydrocarbons from the pyrolysis/non-thermal plasma/catalysis of waste polypropylene <i>Gu Jie</i>
10:15 – 10:30	A Platform for the Online Characterisation and Self-Optimisation of Lipid Nanoparticles (LNPs) <i>Roisin O'Connell</i>	Process Design and Sustainability Assessment of Lignocellulosic Biomass Conversion to Biofuel (Ethyl Levulinate Production) <i>Ali Alazzawi</i>
10:30 – 10:45	Supersaturation effect on crystal morphology of iron (II) sulphate heptahydrate <i>Gabriele Sumanskaite</i>	Modelling of Precipitation Reactors in Reprocessing of Spent Nuclear Fuel <i>Abdul Rana</i>
10:45 – 11:00	Autonomous kinetic model determination of active pharmaceutical ingredients <i>Clarissa Wilding</i>	Non-thermal plasma/catalysis for upgrading waste-derived pyrolysis oils and gases, and hydrogenation of CO ₂ <i>Maryam Khatibi</i>
11:00 – 11:15	Multi-objective self-optimisation of heterogenous catalytic reaction. <i>Soya Dohi</i>	Shear-Induced Breakage and Reflocculation of Nuclear Waste Simulant Suspensions from Lab to Pilot Scale <i>Jacob Rumey</i>
11:15 – 11:30	Discussion	Discussion
11:30 – 12:00	<i>Poster break, Room 4.07</i>	
12:00 – 13:00	<i>Lunch, Room 4.06</i>	
	Materials for a Sustainable Future Parallel Session Lecture Theatre B Chair: Dr Tom Robshaw	Energy Transition and Net Zero Parallel Session Lecture Theatre C Chair: Dr Scott Wiseman
13:15 – 13:30	Analysis of lyotropic phase changes of alpha olefin sulfonate in a drying droplet <i>Robin Winder</i>	Physicochemical Characterisation of Asphaltenes Partitioned at Oil-Water Interfaces <i>Gerda Luht</i>
13:30 – 13:45	Application of ToF-SIMS in a FIB-SEM to Biomaterials <i>Rebecca Hughes</i>	Supercritical water liquefaction of mixed plastic waste 'contaminated' with PET (polyethylene terephthalate): Influence on product yield and composition <i>Maria Mathew</i>
13:45 – 14:00	Development of an automated reactor platform for the synthesis of functional polymers <i>Emelia Griffiths</i>	Development of a kHz resonator for characterizing the rheology of complex fluids <i>Gao Guohong</i>
14:00 – 14:15	Aesthetic Dental Materials: Anti-infective Photoactive Fluorapatites <i>Lydia Dawkins</i>	Enhanced removal of cesium from clay minerals by capacitive deionization process with surfactants <i>Jiaxin Hu</i>
14:15 – 14:30	Structural Evolution in MVD-Grown Al-Doped ZnO Thin Films Using 4D-STEM <i>Tiantian Chai</i>	A comparison of pre-treatment approaches for enhancing the biomethane yield from water hyacinth <i>Betul Esen</i>
14:30 – 14:45	The internal structure of acrylamide-based microgels depends on monomer reaction rates during synthesis <i>Silan Shan</i>	Upgrading Municipal Solid Waste fast pyrolysis oils Via esterification and hydrotreatment <i>Nkechi Ofoegbu</i>
14:50 – 15:15	Poster prizes, and Closing of the event, Lecture Theatre B	
15:15 – 16:00	<i>Refreshments and networking, SCAPE Foyer</i>	