Novel Technologies in Bioprocessing

Dear Participants

It is a pleasure to welcome you to this one-day conference on **Novel technologies in Bioprocessing** held on 23rd June 2026 in London and organised by the Biochemical Engineering Special Interest Group (BESIG) within the Institution of Chemical Engineers (IChemE).

Bioprocessing is an integral part of the manufacturing process of any products. With the introduction of **novel applications and newly developing industries**, as well as current world challenges such as climate change affecting all aspects of manufacturing, the bioprocessing tools, technologies and strategies currently available are becoming less effective, less suitable and unsustainable.

Today we will explore the newest developments in bioprocessing tools, technologies and strategies with sustainability in mind, covering a range of different applications including biopharmaceuticals, foods, cosmetics, detergents and others.

We hope that you will enjoy the science, interact with our trade sponsors and extend your network.

On behalf of the organising committee,

Vaughan, Eirini, Neil, Petra, Ali

UCL 200

IChemE BESIG BIOCHEMICAL ENGINEERING SPECIAL INTEREST GROUP

ORGANISING COMMITTEE

Vaughan Thomas
UCL & Tillingbourne Consulting

Eirini Theodosiou
Aston University

Neil Renault
Industrial Biotechnology Innovation Centre

Petra Hanga
UCL & Quest Meat

Ali Bahari
Fluor Limited

SPONSORS

SANI Membranes

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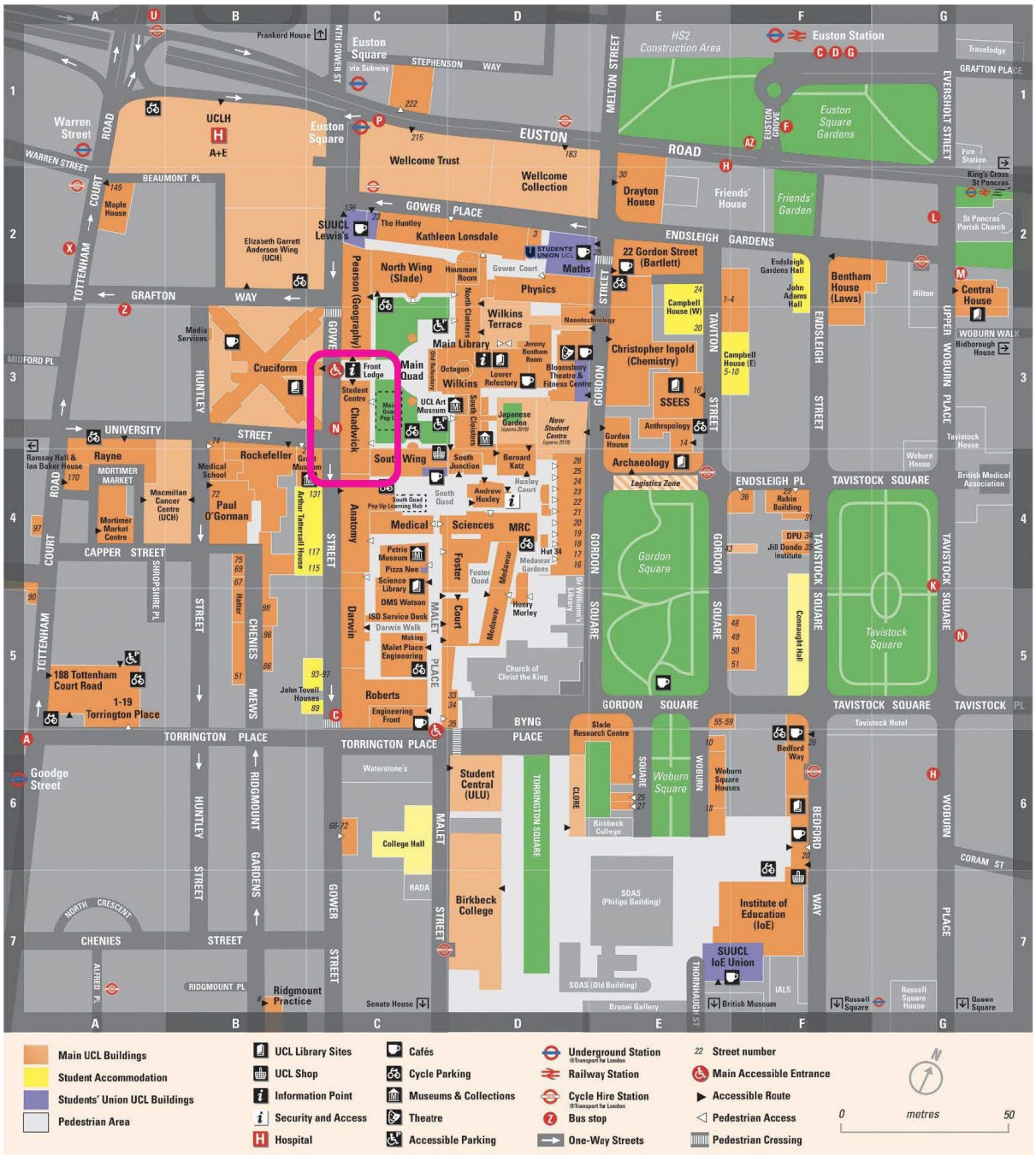
PRACTICAL INFORMATION

EVENT VENUE

UCL Bloomsbury Campus
Chadwick Building (highlighted by the pink rectangle on the map below)
Gower Street
London WC1E 6BT

Enter by the main gates to UCL from Gower Street and turn right. Directions to the conference will be posted on the building.



SCIENTIFIC SESSIONS

All presentations will take place in Chadwick Building B05 Lecture Theatre (Basement). Visual access route via this link https://mediacentral.ucl.ac.uk/Play/91443#!

LUNCH/COFFEE breaks and TRADE EXHIBITION

Lunch/coffee breaks and Trade exhibition will be in Chadwick Building G04 (Ground Floor).

Wi-Fi

For academic delegates, please connect to the Wi-Fi via Eduroam using your own university login details. For those without Eduroam, please use **UCLGuest** which will require a sign-in. UCLGuest uses The Cloud. Instructions here: https://www.ucl.ac.uk/isd/how-to/connecting-to-uclguest-wi-fi-cloud

CONFERENCE PROGRAMME

9:45	*Registration opens*
10:30	**Welcome and Introduction to BESIG IChemE and the meeting** Vaughan Thomas (*UCL & Tillingbourne Consulting*)
	CHAIR: Vaughan Thomas (*UCL & Tillingbourne Consulting*)
10:40	Sponsor Showcase – ***Pure Transfer***
10:45	**Engineering Aerobic Gas Fermentation: From lab to industry** Katie Mulligan (***Airbio***)
11:10	Sponsor Showcase – ***Sani Membranes***
11:15	**The principles behind Vibro® filtration technology and the bioprocessing challenges it addresses** Adam Poulsen (***Sani Membranes***)
11:40	*Coffee/Tea Break*
12:00	Sponsor Showcase – ***IPSEN***
12:05	**Introducing the Culture Collection of Algae and Protozoa (CCAP) and the CCAP-ARIES algal scale-up, downstream processing and metabolomics facility** Michael Ross (***Culture Collection of Algae and Protozoa***)
12:30	**Engineering Cell Separation (Sometimes in Reverse) for Scalable Biomanufacturing** François Taute (***uFraction8***)
12:55	*Lunch & Networking*
	CHAIR: Eirini Theodosiou (*Aston University*)
14:00	**What to Run Next... and Why: AI Decision-Making for Bioprocessing** Stefan Bostock (***Danu Insights***)
14:25	**Continuous chromatography for biologics** Thomas Müller-Späth (***YMC ChromaCon***)
14:50	*Coffee/Tea Break*
	CHAIR: Petra Hanga (*UCL & Quest Meat*)
15:10	**TRIFLE: Making safe medicines, faster** Anka Lucic (***Roxigen***)
15:35	**Engineering Sustainable Biomanufacturing: From Lab to Pilot Scale and Beyond** James Winterburn (***Holiferm***)
16:00	**Closing remarks** Vaughan Thomas (*UCL & Tillingbourne Consulting*)

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SPEAKERS

Katie Mulligan

Aerbio

Engineering Aerobic Gas Fermentation: From lab to industry

Aerobic gas fermentation is not simply conventional fermentation with novel feedstocks. It is a gas-transfer-limited, safety-critical, hardware-dependent bioprocess that requires an integrated approach to scale-up, including novel solutions that combine flammable-gas safety with sanitary design.

This talk will introduce aerobic gas fermentation as a platform for converting gaseous feedstocks, including hydrogen, oxygen and carbon dioxide, into alternative protein. Drawing on Aerbio's experience developing hydrogen-oxygen gas fermentation technology, it will highlight the key engineering considerations involved in moving from lab-scale development to industrial deployment.

Biography

Katie Mulligan is the Engineering Manager at Aerbio, where she leads process and facility design for the scale-up of the company's aerobic gas fermentation technology.

Since 2019, Katie has worked on the engineering and deployment of hydrogen-oxygen gas fermentation projects from lab to commercial scale, including leading the design, deployment and early operation of Aerbio's pilot plant in the Netherlands. She was also Aerbio's lead engineer for "Clean Protein: Engineered for a Resource-Constrained World", a project which was shortlisted as a finalist for the 2025 IChemE Global Awards in the Biopharma category.

Adam Poulsen

Sani Membranes

The principles behind Vibro® filtration technology and the bioprocessing challenges it addresses

Vibro® Membrane Filtration (VMF) is a dynamic micro- and ultrafiltration technology that uses a vibration-driven anti-fouling mechanism to maintain uniform transmembrane pressure and gentle product handling. Adam will introduce the core principles behind the technology and the challenges it addresses; fouling, concentration polarisation, and shear stress on sensitive biomolecules and show how VMF enables higher yields, gentler continuous processing, and a smaller footprint with seamless scale-up to industrial production.

Biography

Adam has a Master's Degree in Chemical- & Biochemical Engineering from the Technical University of Denmark. He has extensive experience from both the oil & gas sector and the pharmaceutical industry, before moving to SANI Membranes. Before becoming responsible for SANI Membrane's Pharma Key Accounts, Adam joined the company as Process, Application & Product Specialist assisting pharma and biotech customers in achieving optimal results with Vibro® technology.

Michael Ross

Culture Collection of Algae and Protozoa (CCAP) Oban

Introducing the Culture Collection of Algae and Protozoa (CCAP) and the CCAP-ARIES algal scale-up, downstream processing and metabolomics facility

CCAP is a NERC-UKRI National Capability service. We are a global access point to more than 3,200 strains of micro and macroalgae, cyanobacteria, and protozoa. We are one of the oldest, largest, and most biodiverse service collections for living algae and protozoa, globally. CCAP provides a variety of services to the research, industry, and educational communities, from strain and growth media supply, taxonomy, molecular services, education, patent and confidential deposits, and actively engage with research. More recently, CCAP has expanded its portfolio to include the Bioinformatics Gateway and CCAP-ARIES; an algal pilot scale-up, downstream processing, and analytical facility.

Biography

Mikey is the Head of the Culture Collection of Algae and Protozoa (CCAP) and is a lecturer in Algal Biotechnology at the Scottish Association for Marine Science (SAMS). Being at this interface, he has a broad range of fundamental and applied research expertise across a range of algal science. This is in addition to experience with facility management, research, education outreach and communication.

François Taute

uFraction8

Engineering Cell Separation (Sometimes in Reverse) for Scalable Biomanufacturing

uFraction8 is developing a modular microfluidic cell-separation platform designed to provide a low-shear, scalable alternative or complement to conventional centrifugation and tangential flow filtration in bioprocessing. Building on larger-format separation work in microalgae, the next development objective is to downscale the technology into a benchtop instrument suitable for process development, application screening, and early-stage validation across cell-based and biomanufacturing workflows.

The benchtop system will enable users to assess cell harvest, clarification, dewatering, cell retention, media recycling, and product–cell separation at small scale, with particular relevance at the upstream–downstream processing interface. By supporting continuous or semi-continuous separation, the technology has the potential to reduce batch handling, minimise shear exposure, improve process integration, and generate scale-relevant data for future deployment.

Pre-pilot and pilot-scale systems remain part of uFraction8's development pathway, but are expected to be advanced through bespoke commercial collaborations, strategic partnerships, or targeted funding programmes where there is a clear application need and scale-up rationale.

Biography

François is a PhD-trained biotechnologist with +18 years of multidisciplinary R&D experience, combined with +12 years commercial R&D leadership across process and product development for biomanufacturing, tissue engineering, biomaterials and sustainable biotechnology. He specialises in translating complex science into commercially viable products, combining deep technical expertise with commercial strategy, regulatory awareness and entrepreneurial execution.

His work spans cell and gene therapies, vaccines, stem cells, viral vectors, organ-on-chip systems, diagnostics and next-generation bioprocessing technologies. He has supported technology development from proof-of-concept through commercialisation, including funding strategy, IP management, and strategic collaborations for market-specific R&D.

Stefan Bostock

Danu Insights

What to Run Next... and Why: AI Decision-Making for Bioprocessing

Bioprocessing teams face a combinatorial challenge: vast experimental spaces, limited capacity, and high cost per run. The bottleneck is rarely data collection - it is deciding which experiment to run next, and knowing why. This talk introduces AI-guided decision-making for bioprocessing, combining digital twins with advanced experimental design optimisation to help R&D teams choose the most informative next experiment under real lab constraints.

Biography

Dr Stefan Bostock is CEO and Co-Founder of Danu Insights, an Edinburgh-based AI company building decision infrastructure for biotech R&D. Danu's platform combines AI-generated digital twins with advanced experimental design optimisation to help scientists run fewer, smarter experiments. Danu recently won the UKRI Agentic AI Pioneers prize. Stefan holds a DPhil in Biomedical Engineering from the University of Oxford, in collab with Roche's pRED department, and an MPhil in Bioscience Enterprise from Cambridge.

Thomas Müller-Späth

YMC ChromaCon

Continuous chromatography for biologics

Continuous chromatography offers tremendous improvements in throughput and costs of downstream processing of Biologics. This presentation will briefly introduce continuous chromatography process principles, followed by case studies of monoclonal, bispecific antibody and ADC case studies. Also the aspects of process control and scale-up will be covered.

Biography

Thomas Müller-Späth is CEO of YMC ChromaCon and is an expert in downstream processing and continuous bioprocessing technologies, with extensive experience in chromatography process development, scale-up, and manufacturing for biologics.

Anka Lucic

Roxigen

TRIFLE: Making safe medicines, faster

During the development of a biopharmaceutical, global pharma companies lose up to $25 million per week in lost revenue due to production delays caused by the slow methods used to track and purify drug molecules. Time Resolved Intrinsic Fluorescence Lifetime Extraction (TRIFLE) is the only patented platform that track drugs and impurities in real time during a purification without any training data, providing users with instant clarity and saving weeks' worth of time.

Biography

Anka did her BSc in Biochemistry at Kings' College London, she stayed on for an MRes in Molecular Biophysics where she specialised in X-Ray crystallography. Anka then moved to Oxford for her DPhil where she studied how metallo beta lactamase enzymes hydrolysed carbapenem antibiotics using time resolved serial crystallography. She stayed in Oxford for another two years for a post doc studying HIV trafficking before moving to UCL to work on the development of TRIFLE and the virus laser. She has also completed the Innovate UK ICURe course to carry out market validation.

James Winterburn

Holiferm

Engineering Sustainable Biomanufacturing: From Lab to Pilot Scale and Beyond

Achieving a circular bioeconomy requires scalable, sustainable bioprocesses that convert renewable feedstocks into biodegradable products. Sophorolipids, produced by yeasts such as *Starmerella bombicola*, are promising biosurfactants with a wide range of use cases, e.g. home, laundry and personal care. Integrated fermentation and gravity separation technology invented and developed in the Winterburn Group has been scaled to an 18 m^3, 1600 ktpa capacity commercial demonstrator via Holiferm, spun out in 2018. Integrating metabolic engineering, process intensification, technoeconomic analysis and life cycle assessment, is necessary to deliver viable, scalable biomanufacturing routes. Here the focus is on translation and commercialisation, linking innovation to industrial application in order to build a sustainable future.

Biography

James Winterburn is Chief Scientific Officer and Co-Founder of Holiferm, and leads the Winterburn Group's research into sustainable bioprocessing. His group developed the integrated fermentation and gravity separation technology behind Holiferm, spun out in 2018 and now scaled to an 18 m^3, 1600 ktpa commercial demonstrator. His work bridges metabolic engineering, process intensification, technoeconomic analysis and life cycle assessment to translate lab innovation into industrial-scale, sustainable biomanufacturing.