

# ENVIRONMENTAL BIOTECHNOLOGY NETWORK

## ECR Working Group and ECR events





# Supporting the future - Early Career Researchers

EBNet is proud to have had the chance to meet and support so many early career researchers (ECRs) with a genuine passion for Environmental Biotechnology. These are future leaders in training who will shape the direction of the field both the UK and abroad. We have offered grants to support their participation at more than 20 international conferences, allowing training and skills transfer and showcasing the work to the widest possible audience. Our annual 2/3-day summer ECR conference ran from 2019-2024. It showed steady growth over the years, doubling in size to the point of needing parallel sessions in its final year, where we finally broached the 100-delegate mark!

This was not a passive event: everyone attending contributed with presentations or posters, making it not only a great place to network but also *the* best place to keep abreast of ongoing work in research groups across the UK. Our thanks go to all the supporters and invited speakers for the prizes, site visits, career or industry-focussed keynote talks and workshops offered to the attendees. We benefited from some inspirational international speakers and thank them for generously sharing their time and experiences.

By participating in joint careers events with other NIBBs, we hope to have opened up the wider possibilities of a career in industrial biotechnology to our ECR members as they look towards the academic and commercial sectors for employment. Our ECR WG has done its part, creating several events and professional skills support workshops for all to access. EBNet even ventured into the world of social media by providing a hands-on video training workshop to support content creation by this new generation of science communicators.

Perhaps the most important aspect of our work with ECRs was networking a cohort of young professionals at arguably their most important career stage; fostering mutual support networks, enabling the exchange of practical tips and conceptual understanding, providing a forum for free discourse and conversation, and creating a sense of community identity based on their shared goal of *environmental protection, bioremediation and resource recovery*. We believe that these interpersonal relationships will serve wider society for years to come as a lasting legacy.

**‘EBNet ECR - huge opportunity for career development.’**  
*- Emmanuel Atai, Cranfield University*

**‘EBNet provides a welcoming, informal and supportive environment for ECRs to work together and bounce ideas around in the realm of environmental biotechnology.’**  
*- Angela Sherry, University of Northumbria*

**‘Best engaging and networking experience.’**  
*- Neeraj Chauhan, University of Birmingham*

# Annual ECR conferences - ECR19 to ECR 24

Our six annual ECR conferences grew in popularity each year, eventually doubling in size. Delegates valued the friendly and relaxed opportunity to present amongst peers; many went on to showcase their research with help from an EBNet Travel Bursary at top international conferences.



2019: In-person, Sheffield Hallam University – 1-2 July

2020: Held online, 25 June - 09:00 - 16:00

2021: Held online from Monday, 28 June 2021 - Thursday, 1 July

2022: In person, Jubilee Conference Centre, University of Nottingham - 12-14 September







2023 In person, Edinburgh Conference Centre, Heriot-Watt University - 30 August - 1 September



2024: In person, The Frederick Douglass centre, Newcastle University – 24-26 July



# Early Career Researcher (ECR)

## Working Group

Led by [Dr Anjali Jayakumar](#), Newcastle University.

This WG arose naturally from the formation of an ECR Scientific Committee to help behind the scenes at our ECR conferences. These ECR enthusiasts were helpful, willing and provided thoughtful feedback and suggestions. But, limited by the 2/3-day conference format, we were initially unable to include all the ‘extras’ that they would have found useful.

The ECR WG wanted to create a supportive space for ECRs who work in environmental biotechnology to support, inspire, and empower each other. Specifically, this was an opportunity to bring together the geographically dispersed – as members were spread amongst different universities, departments, and disciplines across the UK.

### ACTIVITY SYNOPSIS

Career development is a top priority for ECRs, and the group organised two webinars with invited speakers from academia and then industry to share experiences: *In Conversation with Environmental Biotechnologists Career Talk #1: [Journeys of Academic Pursuits](#)* and *In Conversation with Environmental Biotechnologists Career Talk #2: [The Road from Academia to Industry](#)*. They also arranged a joint 2-day training workshop in Coventry with the Institute of Water on *The Next Wave: Skills Development for Emerging Professionals*. This involved facilitated skills sessions chosen by the ECRs. At ECR24 they ran an afternoon masterclass on *Using LinkedIn for Professional Development* led by a group member – to great acclaim.



Wordcloud: ECRs by UK academic institution



Dr Anjali Jayakumar,  
Newcastle University –  
ECR WG organiser

EBNet also supported external events specifically targeting ECRs. These included the 2023 joint NIBB event: *Realising the potential of your ideas through partnership and funding*, the 2021 ECR *Women in Water Conference* and the 2022 ECR *People in Water Conference*.



# Travel and Training

Travel bursaries were available to support oral presentations at international conferences and to enable attendance at relevant UK events.

We created multiple opportunities to present within the Network (via webinars and our annual ECR conferences), with further support to showcase work at various respected conferences: *FEMS, ISME, IWA* (various), *AquaConSoil* etc.

Communication is a vital foundational skill for all Early Career Researchers, and we provided free access to hands-on and virtual training such as the EBN Net Video Training 2024 (webinar and workshop/ plus [online materials](#)).

See how our travel bursaries benefited our ECR members :



- [Kathleen Dunbar, University of Surrey, ISME 19, 18-23rd August 2024, Cape Town.](#)
- Paul-Enguerrand Fady – WasteEng24, 20-23 August 2024.
- [Meredith Barr – WasteEng24, 20-23 August 2024 and video here.](#)
- [Bang Du, University of Surrey – IWA World Water Congress & Exhibition 2024, 11-15 August 2024 and video here.](#)
- Sergio Serrano Blanco, Newcastle University, ICWRR 2024, 18-21 June 2024
- Pinelopi Savvidou, Cranfield University – IWA YWP European Conference 16-19 June 2024
- [Nasreen Nasar, Cranfield University – 18th IWA World Conference on Anaerobic Digestion 2-6 June 2024 and video here.](#)
- Stella Christou, EDAR7, 26-31 May 2024
- [Anna Salvian, University of Surrey – NA-ISMET, 3-5 April 2024, and video here.](#)
- [Ipek Tezyapar Kara, Cranfield University – AquaConsoil, 11-15 September 2023, video here.](#)
- Anjali Jayakumar, Newcastle University – AquaConsoil, 11-15 September 2023
- [Tao Lyu, Cranfield University – WETPOL, 10-14 September 2023, video here.](#)
- Mac-Anthony Nnorom, University of Surrey – IWA MEWE 10-14 September 2023
- [Aaron Brown, Leeds University – BIORESTEC, 14-17 May 2023](#)
- [Sanjay Nagarajan – BIORESTEC, 14-17 May 2023 and video here.](#)
- [Charlotte Head, University of York – SETAC, 13-17 November 2022](#)
- [Bing Guo, University of Surrey – ISME 18, 14-19 August 2022 and video here.](#)
- [Reihaneh Bashiri, University of Newcastle – ISME 18, 14-19 August 2022](#)
- [Sophie Holland, Heriot-Watt University – ISME 18, 14-19 August 2022 and video here.](#)



# I am an Environmental Biotechnologist...

One purpose of a network is to foster a shared sense of identity. The term Environmental Biotechnology may be defined in many ways – an issue touched upon in our *Social Science WG report*. As part of our community-building efforts we encouraged attendees at our annual ECR conference to complete the sentence ‘I am an Environmental Biotechnologist because...’ in their own words.

Simultaneously we have been privileged to follow the career journeys of many people over the lifetime of the network. In counterpoint to the ‘snapshots’ from our ECRs, these professionals have developed their career paths over time in different directions. We hope these profiles offer a window into the activities of our diverse membership base.

*My focus is on understanding and optimisation of anaerobic biotechnology through metagenomic data*

Tri Yulianti,  
Imperial College

*I enjoy exploring nature and figuring out how microbes and their enzymes can be applied to solve everyday issues, such as plastic pollution.*

Zak Towle,  
Northumbria University

*I am passionate about water and wastewater research and would like to see improvements in the water sector*

Marion Engole,  
Aston University

*I am investigating the role of bacteriophage within wastewater treatment reactors, and their potential for use in biocontrol of problematic bacteria.*

Matt Irwin,  
University of Southampton

*I am an Environmental Biotechnologist because I care about a liveable world for our children and grandchildren.*

Amin Zarei,  
University of Surrey

*Right now I'm working on the fundamental geomicrobiology of arsenic in groundwater, including remediation of arsenic pollution.*

Mingyu Feng,  
University of Manchester

*I am an Environmental Biotechnologist because I analyse enzymes from extremophile microorganisms for sustainable biotechnology applications*

Ellie Ashcroft,  
Northumbria University

*I am an Environmental Biotechnologist because I enjoy the challenge of harnessing microorganisms to enhance the sustainability of our ecosystems.*

Lauren Olley,  
Northumbria University

*I am an Environmental Biotechnologist because I am fascinated by the phylogenetic and functional diversity of environmental microorganisms*

Lauren Messer,  
University of Stirling

*My work aims to minimize public health risks due to microbial processes occurring within drinking water distribution systems*

Dinesh Singh Bhandari,  
University of Glasgow

*I am developing new biosensors in support of strategies to control antibiotic resistance genes and protect human health.*

Yiting Wang,  
Cranfield University

*My research background is in environmental microbiology and I am currently working on wastewater surveillance*

Ying Guo,  
Cranfield University



# I am an Environmental Biotechnologist....



*Sergio Serrano Blanco,  
Newcastle University*

I'm passionate about using interdisciplinary research to develop solutions for environmental challenges. By using biotechnological approaches in collaborative teams, we can address major issues and create new opportunities for sustainable development, biodiversity conservation, and a healthier planet.

My work aims to optimize microbial communities within biofilters, improving water treatment processes and ensuring safe and high-quality drinking water for communities worldwide.

*Xiang Shi, University of Glasgow*



I research micro-organisms that can be used to upgrade and valorise biomass and waste streams to useful chemicals, with an aim of replacing petrochemicals with bioderived ones.

*Laura Martin, University of Oxford*





# I am an Environmental Biotechnologist....



I am an Environmental Biotechnologist because I am passionate about restoring contaminated soils. I believe that finding solutions to environmental problems today will create a better world for tomorrow.

*Okelani Aworabhi, Cranfield University*

I work with microorganisms capable of degrading environmental pollutants such as plastics, pesticides and petrochemicals. My aim is to improve degradation efficiencies and enable the conversion of waste and pollutants into added-value products.



*Alice Banks, ICL*



My research aims at developing a sustainable process to treat industrial effluent from pulp and paper mills, which is rich in Lignin and harmful to the environment if released untreated into receiving waters.

*Himani Taneja, Canterbury Christ Church University*



# I am an Environmental Biotechnologist....

I am **Ayisha Affo Souleymane**, a PhD Research Student at Cranfield University.

The aim of my PhD project is to develop an understanding of how phosphorus dynamics - between the water, sediment and vegetated compartments of surface flow wetlands - can be manipulated to enable prediction of treatment performance and determine the compatibility of phosphorus removal with key co-benefits.



*Ayisha has a Master's Degree for work on nitrogen removal using woodchips as an external carbon source.*



*I am environmental biotechnologist because...  
'I am leveraging the biological processes in constructed wetlands to treat wastewater.'*



# I am an Environmental Biotechnologist....



Wenjun Peng,  
University of Sheffield

My work involves experimental and modelling evaluation of biochar in anaerobic digestion of food waste and biomethanation of hydrogen. As a researcher, I hope I can contribute to the future of clean energy by improving methane yields in stable digestion processes.

I aim to reduce the environmental impact of poultry litter by using anaerobic digestion, ammonia stripping and electro-coagulation to aggregate nitrogen, phosphates and potassium into a stable, bioavailable fertiliser.

Deborah Hall, Harper Adams University



Maggie White, Newcastle University

I believe we can harness the natural interaction of microbes and minerals to develop sustainable water treatment technologies targeting micro-pollutants, and that such low-carbon approaches are critical if we are to achieve net zero by 2050.





# I am an Environmental Biotechnologist....



My research centres on the conversion of spent coffee grounds (SCG) into valuable products using bio-electrochemical systems. I hope to contribute to sustainable waste management and address some environmental concerns caused by current disposal methods for SCG

*Olaoye Oludotun, University of Surrey*

I am passionate about using microorganisms to find innovative and green solutions for dealing with environmental pollution. I believe that through my work in this field, I can contribute to the development of sustainable practices that promote environmental protection.

*Peirou Li, University of Exeter*



*Kathleen Dunbar,  
University of Surrey*

I use bacteria to try to help solve some of the climate change issues our generation is facing. In particular, I engineer bacteria to improve biohydrogen yield, which could be a more sustainable alternative to traditional hydrogen production methods in future.



# I am an Environmental Biotechnologist....

I am **Roman Bielski**, a PhD Student at Loughborough University.

The nitrogen cycle is deeply imbalanced. ANAMMOX bacteria are already responsible for around half of the nitrogen removal on the planet so implementing them in wastewater treatment and bioremediation is of critical importance. We are attempting to understand how to implement them better through simulation using a digital twin.



*Roman holds a bachelor's degree in Chemical Engineering.*



*I am environmental biotechnologist because... 'I think environmental stewardship is an important part of human flourishing. I use metabolic engineering to work out how we can apply and grow them better.'*



# I am an Environmental Biotechnologist....



*Georgia Waldram,  
Heriot-Watt University*

I am an Environmental Biotechnologist with a passion for using marine natural products to improve the environment from which they can be sourced. I work with oil-degrading marine bacteria, which in the right conditions can be used to help clean up oil spills and restore polluted environments.

My work aims to optimize microbial communities within biofilters, improving water treatment processes and ensuring safe and high-quality drinking water for communities worldwide.

*Xiang Shi, University of Glasgow*



I work with environmental bacteria for sustainable and scalable outputs. Sometimes the environment itself has the solution, we just need to look thoughtfully!

*Manpreet Bagga, Newcastle University*





# I am an Environmental Biotechnologist....



My primary focus is the complex interplay between factors that affect the performance of wetlands in treating stormwater. I use sensors for monitoring and hybrid models and digital twinning for evaluation.

*Chinedu Ekechukwu, University of the West of England*

I am an Environmental Biotechnologist working on polymer biodegradation. My ultimate goal is to protect the environment from plastic waste by substituting petro-based plastic with more sustainable bio-based materials.

*Prabodhi Preethika Dehiwalage Dona, Newcastle University*



I hope my research on marina bacteria will help replace our everyday personal care products with environmentally friendly compounds, helping to reduce pollution from wastewater treatment plants at its source.

*Karen Fung, Heriot-Watt University*



# I am an Environmental Biotechnologist....

I am **Fiona Bunn**, a Research Student at the University of Edinburgh.

I investigate the factors affecting the efficiency and selectivity of fungal and bacterial leaching of Rare Earth elements from a range of sources. Selectivity and low energy inputs are the key benefits that biology can offer for recovering trace resources over traditional hydrometallurgy. I am motivated to harness the potential of the microbial world to find solutions to global challenges, and I think biotechnology offers a great opportunity for a sustainable future that we have only just started to explore.



*Fiona works on the circular economy of critical metals.*



THE UNIVERSITY  
of EDINBURGH



*I am environmental biotechnologist because...*

‘My research aims to reduce harmful/energy intensive mining practices and enhance recovery of rare earth elements from waste sources using bioleaching.’



# I am an Environmental Biotechnologist....



I work on anaerobic digestion of organic wastes to produce biogas and bio-fertiliser. My research aims to optimise dry digestion of high-solid organic wastes by engineering the percolate composition.

*Nnenna Chukwuekezie, Cranfield University*

My job is all about generating awareness of brand new innovative and advanced analytical solutions and to steer these technologies from trial to implementation in the water industry.

*Natalie Lamb, Spring Innovation/University of Sheffield*



I specialise in the production and recovery of valuable chemicals from wastes. I am an Environmental Biotechnologist because it allows me to help solve some of the most pressing concerns of our time.

*Rhys Jon Jones, University of South Wales*





# I am an Environmental Biotechnologist....



Francis Hassard,  
Cranfield University

I am an Environmental Biotechnologist blending microbiology, water treatment and engineering. This interdisciplinary approach allows me to connect diverse fields and apply them to real-world issues. For example, I am working on plastic degrading bacteria and on new engineering approaches for sustainable water treatment.

I believe in the transformative power of science and technology to solve pressing environmental issues. My research interests focus on utilizing the latest technologies for net zero training, digital twinning, and immersive technologies in biotechnology research.



Muhammad Zahid, Teesside University



Nathan Wright, QMUL

I am an Environmental Biotechnologist working on biophotoelectrochemical applications for carbon-negative solar energy production. Cyanobacteria extract CO<sub>2</sub> from the atmosphere and also generate high energy electrons from light, which can be utilised to power small electronic devices.

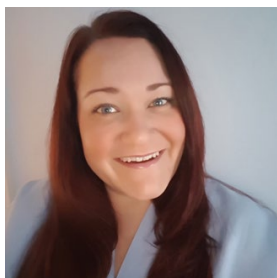
# I am an Environmental Biotechnologist...



## Career journeys

**Dr Anjali Jayakumar** joined EBNNet as an Early Career Researcher based at the University of Edinburgh in 2020, one year after obtaining her PhD. With our return to live events, she promptly won 'best presentation' at the EBNNet ECR Conference 2022, Nottingham, for her work on Nature-based solutions for water treatment using Biologically Enhanced Biochar. As an active volunteer for the annual ECR conference Scientific Committee it was a natural progression for Anjali to then lead the ECR Working Group. She has since organised numerous much appreciated support events and workshops for other ECRs working in EB whilst continuing to contribute behind the scenes with input into other arenas – like our Social Science WG Report. She is now a Lecturer in Chemical Engineering at Newcastle University teaching and supervising the next generation of ECRs

<https://www.ncl.ac.uk/engineering/staff/profile/anjalijayakumar.html>



## Career development

Based at Northumbria University, **Dr Angela Sherry** joined EBNNet as an Early Career Researcher in 2019. A year later she was the first recipient of our maximum level of research funding - a £100k cross-disciplinary award - for her project with Dr Jane Scott, Newcastle University on Fibre Highways: translocation of the microbiome for pollutant bioremediation. She then won 'best presentation' at the EBNNet ECR conference in 2021. The research delivered a published paper, and then served as a platform for exhibitions, invited talks and follow-on bids. Her career blossomed and by 2023 she had moved from Senior Research Fellow to Assistant Professor in Microbial Environments, currently supervising 3 PGRs and 2 PDRAs.

<https://www.northumbria.ac.uk/about-us/our-staff/s/angela-sherry>



## Chance Encounters



**Dr Meredith Barr** joined EBNNet in 2023 after meeting our PI at a joint NIBB ECR event: Realising the potential of your ideas through partnership and funding. Having impressed everyone with her enthusiasm she quickly set up our Biochars for Pollution Prevention Working Group and followed up with a webinar from top speakers, lab visits for members, and has represented us with a chaired session at WasteEng24 in Japan, making valuable international connections. On behalf of the Working Group she organised a joint 2-day workshop with BBNNet to explore integration of thermal, thermochemical, and biological conversion technologies in waste and biomass valorisation. As a new lecturer at London South Bank University (LSBU), she continues to devote time and input into other EB initiatives.

<https://researchportal.lsbu.ac.uk/en/persons/meredith-barr>

## Pathways to Industry



**Dr Natalia Jawiarczyk** joined EBNNet in 2019 as an EngD Research Engineer based at Cranfield University. She won 'best in session' at the EBNNet ECR Conference 2019, Sheffield for her presentation on Remediation of oil- rich wastewater: managing sewer Fat, Oil and Grease (FOG) deposits with bio- additive products. At the European FOG Summit 2021 she showcased her work to a large industry gathering. Whilst still a student at Cranfield she organised two highly successful conferences, part-sponsored by EBNNet: the Early Career Women in Water Conference 2021 and the Early Career People in Water Conference 2022. Meanwhile, she was an active member of the ECR Scientific committee and the ECR Working Group, continuing to attend our conferences. Natalia has now taken her skills to Isle Utilities where she is a Senior Consultant delivering projects for water utilities and industrial clients globally. Here she continues to work on transforming decentralised power-to-methanol production via the UP-TO-ME consortium - an EU-funded project.

<https://isleutilities.com/team-member/natalia-jawiarczyk/>





## Reputation Building

**Dr Sanjay Nagarajan** has been an active member of two consecutive NIBBs. He first joined ADNet whilst still a research fellow at Queen's University Belfast and won 'best poster' first time around at the 2018 ECR conference. On joining EBNNet, he stayed fully engaged with our annual conferences - participating over many years with posters and presentations, Later, as a valued Scientific Committee member he chaired sessions and assessed abstracts. In 2022 he moved to the University of Bath and joined the management board of our sister-NIBB, HVBNet. He is now deputy director of the Centre for Sustainable Energy Systems (SES), putting his experience to good use on biorefineries.

<https://researchportal.bath.ac.uk/en/persons/sanjay-nagarajan>



## International Reach

**Prof Zhugen Yang**, Cranfield University, joined EBNNet in 2020 – at a time when biosensors suddenly became a hot topic. In 2022 he won an EBNNet POC award to work on CRISPR/Cas-enabled paper-based sensors for rapid monitoring of antimicrobial resistance. He then went on to form a highly active Working Group tackling the topic of Environmental Sensors and Wastewater Surveillance. Under this umbrella, he organised well-attended specialist webinars for our members with speakers from Spain, Australia, the USA, and organisations from across the UK. EBNNet was happy to provide substantive support for him to host the Testing the Water 6 international conference in Oxford in 2023. He followed this with a mini symposium that brought together more top speakers from the USA, China and Australia to meet their UK counterparts at Cranfield in 2024. Networking on an international scale!

<https://www.cranfield.ac.uk/people/professor-zhugen-yang-23276478>



## Ongoing Impact



As a senior Lecturer **Dr (now Prof) James Chong** was amongst the first to join the original 13 BBSRC NIBBs, starting as a management board member for biomolecular tools with the Anaerobic Digestion Network in 2014. His successful POC project Shotgun metabolomics in anaerobic digestion led to a realisation that bioinformatics would be crucial to unlocking the power of large datasets. Becoming a full Professor at the University of York in 2019, he joined EBNet, conducted research with Carbogenics Ltd via a Business Interaction Voucher award in 2020, and then set up the Bioinformatics Working Group organising webinars for EBNet members and sessions at the industry-focused European Biosolids conferences. Networking led to him becoming an Oracle for Research Fellow in 2023. All this fed into his successful Cloud-SPAN project to provide 'omics training for researchers. His research group, the Centre of Excellence for Anaerobic Digestion (CEAD), combines a suite of 30L AD reactors with powerful computing resources to enable world-leading research of relevance to the wider water sector.

<https://www.york.ac.uk/biology/people/james-chong/>

*I am a researcher in Organic chemistry, working on a greener approach of biomolecules derivative synthesis.*

Rituparna Saha,  
University of Hull

*I work on enriching and maintaining electroactive bacteria for CO2 conversion into commodity chemicals*

Abbas Abbas,  
Loughborough University

*My research focuses on developing proof-of-concept bioelectrochemical systems as potential sustainable treatment processes for industrial wastewater.*

Radwa Ibrahim,  
University of Westminster

*My research explores anode modification in microbial fuel cells. I'm looking to enter a career in sustainability consultancy.*

Jack Reeder,  
Newcastle University

*Everyone must do their part to make the world a better place to live. I contribute by using my skills in molecular biology to remove pollution.*

Amulyasai Bakshi,  
University of Nottingham

*I am an Environmental Biotechnologist because I want to understand how we can use microbes to degrade microplastics in the ocean.*

Jennifer Scott,  
Heriot-Watt University

*I am an Environmental Biotechnologist because I want to understand how the world works and make it a better place.*

Beate Christgen,  
Newcastle University

*I study environmental engineering, and I chose reduction of anti-microbial resistance in river catchments as my research topic.*

Xiaoqi Yu,  
Newcastle University

*I apply technological advances and innovative solutions to develop sustainable bio-based products, thereby contributing to a circular economy.*

Omulu Fagbiele,  
Heriot-Watt University

*My specialism is the study of anaerobic ammonium oxidation for nitrogen removal from wastewater.*

Zhufan Wang,  
University of Surrey

*I am an Environmental Biotechnologist because environmental problems require global biotechnical solutions.*

Carlos Domingo-Felez,  
University of Glasgow

*I work on bio-sourced polymers that are bio-degradable, non-toxic and have anti-microbial properties.*

Manjinder Singh,  
University of Birmingham



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