



2025 SUMMER SHOWCASE

**BATH INSTITUTE OF
SUSTAINABILITY AND CLIMATE CHANGE**

**CDT IN SUSTAINABLE CHEMICAL TECHNOLOGIES:
A SYSTEMS APPROACH**

7 & 8 July | Programme

Monday 7 July

13:30 ARRIVAL & REGISTRATION

14:00 WELCOME

Prof Tina Düren

Department of Chemical Engineering;
Co-Investigator CSCT, University of Bath

Prof Sarah Hainsworth OBE FEng

Pro-Vice Chancellor (Research and Enterprise),
University of Bath

14:10 PLENARY: Inorganic Chemistry: a tool to
address future global challenges in the energy
transition

Prof Silvia Gross

Professor of General and Inorganic
Chemistry, University of Padova, Italy

15:00 PRESENTATION: Carbon emissions from global
chemical production

Dr Rick Lupton

Department of Mechanical Engineering;
Co-Investigator CSCT, University of Bath

15:25 POSTER SESSION | TEA & COFFEE

16:05 FLASH PRESENTATIONS

Cohort '24

CDT in Sustainable Chemical Technologies: A Systems Approach

Edmund Dadge
Harvey Draper
Dalia Elabbadi
Jacob Lovett
Ben Morrison

Alex Olsen
Subhasmita Pradhan
Jamie Renwick
Patrick Travers

16:15 INDUSTRY SHOWCASE

Dr Stefanie Federle
Chief Scientific Officer, Kelpi

Jeff Ive
Chief Technical Officer, Adaptavate

16:45 ALUMNI PRESENTATION: Forging a career in the liminal spaces

Dr Luke Williams
Head of Research Programmes, The Carbon Technology Research Foundation

17:05 PRESENTATION: Shining a light on sustainable chemistry

Dr Alex Cresswell
Department of Chemistry; Associate Director, ISCC;
Co-Investigator CSCT, University of Bath

17:30 CLOSING REMARKS

17:35 POSTER SESSION | DRINKS RECEPTION

18:15 SOCIAL PROGRAMME

Vegan hog roast

Ceilidh dance

Tuesday 8 July

09:00 ARRIVAL & REGISTRATION

09:30 WELCOME

Dr Alex Cresswell

Department of Chemistry; Associate Director, ISCC;
Co-Investigator CSCT, University of Bath

09:35 PLENARY: Research, Evidence and UK Energy Policy

Prof Jim Watson

Professor of Energy Policy; Director, Institute for
Sustainable Resources, University College London

10:25 IGNITE TALKS

PhD researchers

ISCC, University of Bath

Lucia Catalina Burtnik Urueta

Oli Fryatt

Macsen Laming

Adarsha Pradhan

Darren Richards

11:00 TEA & COFFEE

11:30 PRESENTATION: Low-temperature chemical recycling
of consumer vinyl plastics

Dr Jon Husband

Research Fellow in Sustainable Chemical Technologies,
ISCC; Technology Translator, Innovation Centre for
Applied Sustainable Technologies (iCAST)

11:50 **PANEL DISCUSSION:** National and international policy developments shaping the future of academic research on sustainable technologies, the circular economy, and the climate crisis.

Dr Stephen Allen (Chair)
Associate Director, ISCC, University of Bath

Dr Robert Cooke
Sustainability Director, Buro Happold

Roger Hoare
Director of Environment, West of England Combined Authority

Antonia Mattos
Head of Energy Research, Department for Energy Security and Net Zero (DESNZ)

Dr Yixian Sun
Associate Professor in International Development, University of Bath; UKRI Future Leaders Fellow

12:35 **RESEARCH PROJECTS SPOTLIGHT**

Dr Joe Goodall
COSMIC Prosperity Partnership

Dr Ellie Marsh
HORIZON INBUILT: Advancing Sustainable Building Practices in Europe

Dr Mark Wilson
The Centre for Climate Change and Social Transformations (CAST)

12:50 LUNCH

13:50 PRESENTATION: Public and business engagement for climate action: beyond the usual suspects

Dr Samuel Hampton

Research Fellow in Social Transformations, ISCC;
University of Bath

14:10 3MT PRESENTATIONS

PhD researchers

ISCC, University of Bath

Dawid Babula

Matthew Cullen

Pete Dyson

Eva Hawkins

Anita Plumley

Kyriacos Rouvas

14:30 PRESENTATION: Bridging the green gap: Local tools for climate-resilient landscapes

Prof Cristina García Fontán

Professor in the Department of Urban Planning, Higher Technical School of Architecture; Coordinator, People-Environment Research Group, University of A Coruña

15:00 TEA & COFFEE

15:20 **PRESENTATION:** Is it time to rebrand sustainable systems? Maybe... exploring the material world and green growth

Dr Stephen Doliente

Research Fellow in Sustainable Systems, ISCC;
University of Bath

15:40 **PLENARY:** Catalysis as key science and technology for a sustainable future

Prof Walter Leitner

Director, Max Planck Institute for Chemical Energy Conversion; Chair of Technical Chemistry, RWTH Aachen University

16:30 **AWARDS CEREMONY**

Janet Scott Prize

Winner's presentation

Abel + Imray Prize, awarded by *Abel + Imray*

Winner's presentation

Poster Prizes

17:10 **CLOSING REMARKS**

17:15 **NETWORKING RECEPTION**

Professor Silvia Gross

Full Professor of General
& Inorganic Chemistry
University of Padova, Italy



PLENARY

Prof Silvia Gross is Full Professor of General and Inorganic Chemistry at the University of Padova, Italy, with a second appointment at Karlsruhe Institute of Technology, Germany. Her research focuses on the low-temperature wet-chemical synthesis of inorganic nanomaterials, including metal oxides, sulphides, halides, as well as transition metal oxoclusters.

Silvia explores their integration into inorganic or hybrid systems with applications in heterogeneous catalysis, photocatalysis and energy conversion. She is also working on mild solvo- and hydrometallurgical recovery of critical raw materials.

A strong advocate for sustainable innovation, Silvia coordinates the international Master's programme in Sustainable Chemistry and Technologies for Circular Economy at Padova. She is also actively involved in interdisciplinary collaborations and international initiatives, including the Circular Economy Summer Schools.

Silvia's work combines green chemistry principles with advanced analytical techniques to study nucleation, growth and crystallisation processes under controlled and confined conditions.

Dr Rick Lupton

Co-Investigator

*CDT in Sustainable Chemical Technologies:
A Systems Approach*

Senior Lecturer

*Department of Mechanical Engineering
University of Bath*



PRESENTATION

Dr Rick Lupton is a Senior Lecturer in the Department of Mechanical Engineering. His group's research aims to understand how materials, products and systems drive environmental impacts, and how to understand and reduce the uncertainty that is inevitable in doing this. They develop and apply Industrial Ecology modelling methods such as Material Flow Analysis and Life Cycle Assessment, creating open-source tools for data visualisation and modelling.

Rick's work spans key materials including steel, cement, timber, chemicals and plastics, as well as applications in the transport and buildings sectors. Beyond sustainability assessment, he also studies the performance of physical systems under uncertainty, including solar-powered UAVs and wind turbine structural responses.

Rick joined the University of Bath in 2019, having previously worked as a postdoctoral researcher at the University of Cambridge, completing his PhD on frequency-domain modelling of floating offshore wind turbines, and working as a wind turbine design consultant.

Dr Stefanie Federle

Chief Scientific Officer
Kelpi

INDUSTRY PRESENTATION



Dr Stefanie Federle is Chief Scientific Officer at Kelpi, where she leads the development of seaweed-based biomaterials to replace single-use plastic packaging.

A passionate sustainability advocate and CDT alumnus, she combines deep expertise in polymer science with a bold vision for environmentally responsible innovation.

At Kelpi, Stefanie is driving the scale-up of biodegradable, recyclable, and marine-safe packaging solutions for the food, drink, and personal care industries. As the company grows, she is at the forefront of transforming cutting-edge science into real-world impact.

Jeff Ive

Chief Technical Officer
Adaptavate

INDUSTRY PRESENTATION



Jeff Ive is the Chief Technical Officer at Adaptavate, where he leads the development of innovative, sustainable building materials. With a background in naval architecture and over a decade of experience in materials science and engineering, Jeff's career has spanned high-performance yacht design to cutting-edge bio-based construction technologies.

Formerly a team leader at the National Composite Centre (NCC), Jeff's passion for sustainable innovation led to a sponsored MSc in Sustainability in Adaptation and a research project exploring fungal mycelium for surfboard construction. In 2021, he was appointed a Visiting Research Fellow at the University of Bath in recognition of his leadership in sustainable material innovation.

At Adaptavate, Jeff drives the technical vision behind products that aim to revolutionise the construction industry.

Dr Luke Williams

Head of Research Programmes
Carbon Technology Research Foundation

ALUMNI TALK



Luke Williams is Head of Research Programmes at the Carbon Technology Research Foundation, a role he took on in January 2024. With a strong academic foundation spanning science and engineering, Luke holds a PhD in Sustainable Chemical Technologies (CSCT) and an MEng in Biochemical Engineering from University College London (UCL), where his master's research focused on a novel strain of *E. coli* with altered cell membrane permeability—work with potential implications for more efficient protein production.

Prior to joining the Foundation, Luke held roles at UK Research and Innovation, the UK's principal public sector funder of research and innovation, where he managed diverse portfolios of research such as animal welfare and soil science. This included strategy, programme development, and research opportunity design. Passionate about bridging disciplines and pushing the boundaries of knowledge, Luke brings both technical depth and cross-sector insight to his work.

Dr Alex Cresswell

Associate Director
Institute of Sustainability and Climate Change

Co-Investigator
*CDT in Sustainable Chemical Technologies:
A Systems Approach*

Reader
*Department of Chemistry
University of Bath*

Presentation

Dr Alex Cresswell was awarded a Royal Society University Research Fellowship in 2016 to begin his independent research career at the University of Bath. His research focuses on developing new synthetic methods for organic chemistry, with particular interests in catalysis, C-H bond functionalisation, and exploiting reactive intermediates in organic synthesis.

Prior to this appointment, Alex completed postdoctoral research at the University of Illinois at Urbana-Champaign with Professor Scott E. Denmark, working on iron-catalysed cross-coupling reactions, and at the University of Edinburgh with Professor Guy C. Lloyd-Jones on gold-catalysed C-H arylation. He obtained his M.Chem. and D.Phil. from the University of Oxford in 2008 and 2012 respectively, focusing on stereoselective fluorination chemistry.



Professor Jim Watson

Professor of Energy Policy
Director of the Institute for
Sustainable Resources
University College London



PLENARY

Prof Jim Watson is Professor of Energy Policy and Director of the Institute of Sustainable Resources, University College London (UCL). He was previously Director of the UK Energy Research Centre (2013-19).

Jim's research focuses on energy, climate mitigation and innovation policies. He has led interdisciplinary research programmes on the UK energy transition, and international collaborations with colleagues in China, India, Ghana and Zambia.

Jim has advised the UK government and a range of other organisations, including four UK Parliamentary select committees. He is chair of the technical advisory group to the World Bank's Energy Sector Management Assistance Programme (ESMAP), a judge for the Kings Awards (on sustainable development), and the UK executive committee member of the European Energy Research Alliance (EERA).

Dr Jon Husband

Research Fellow
Sustainable Chemical Technologies
Institute of Sustainability and Climate Change

Technology Translator
*Innovation Centre for Applied Sustainable Technologies
University of Bath*



RESEARCH PRESENTATION

Dr Jon Husband is the incoming Research Fellow in Sustainable Chemical Technologies at Bath Institute of Sustainability and Climate Change. His research focuses on circular and sustainable solutions for plastics, particularly towards the defossilisation of plastic manufacture and low-carbon chemical recycling technologies. Jon earned his PhD with Professor Rachel O'Reilly FRS, developing fluorescent probes for polymer and biomolecule applications.

Throughout his career, Jon has worked across academia and industry, including leading the setup of lab facilities at a chemical recycling company, where he ran R&D projects on mixed plastic pyrolysis. Post this, he held a fellowship with Professor Andrew Dove, producing manuscripts on advanced bioplastics.

From 2023, Jon joined iCAST where he has undertaken independent and industry-led projects into bio-based chemicals and chemical recycling.

Dr Stephen Allen

Associate Director
Institute of Sustainability and Climate Change

Senior Lecturer
*Department of Architecture & Civil Engineering
University of Bath*



PANEL DISCUSSION

Dr Stephen Allen's research and teaching focus on embedding sustainability in design and engineering, particularly through use of life cycle assessment (LCA). He and his team work in two related areas:

- (1) improving the methodology of LCA
- (2) applying LCA in experimental research and practical projects in construction and manufacturing.

Stephen joined the University of Bath in 2018, having previously worked as the scientific adviser on energy at the Parliamentary Office of Science and Technology, and as a senior consultant and then director of environmental consultancies in industry. He is a recipient of the George Stephenson Prize (IMechE, 2008) for LCA of wind power.

Prior to 2006, he worked as an engineer in remote parts of Canada and Mexico, designing and building equipment and accommodation for field research.

Dr Robert Cooke

Sustainability Director
Buro Happold

PANEL DISCUSSION



Dr Robert Cooke serves as Sustainability Director for Buro Happold in Bath, UK, leading a team of 120 sustainability professionals delivering services to improve the built environment across the construction industry.

A Doctor of Engineering, Chartered Energy Engineer and Chartered Environmental Scientist with 25 years of experience, Robert holds roles including Chair of the South West and South Wales region of the Energy Institute, steering board member of the Institute of Sustainability and Climate Change at the University of Bath, and co-supervisor of a PhD with UCL on beyond-carbon impacts of buildings.

Robert recently concluded research on regenerative assessment and design methodology for land-change projects and has supervised numerous PhD and MSc studies while collaborating with various institutions globally.

Roger Hoare

Director of Environment
West of England Combined Authority

PANEL DISCUSSION



Roger Hoare is Director of Environment at the West of England Mayoral Combined Authority, where he leads the region's work on Net Zero, Climate Resilience and Nature Recovery. With over 25 years of experience across the public and private sectors, Roger has delivered environmental strategies at local, regional, and national levels, combining policy expertise with operational leadership.

His career spans sustainability, climate change, digital transformation, and organisational change. He has led cross-sector programmes and worked closely with local authorities, national agencies and industry to deliver environmental outcomes that support long-term resilience and clean growth.

Roger is known for shaping pragmatic, system-wide approaches to decarbonisation and environmental governance. He continues to play a key role in mobilising partnerships and aligning investment with the region's sustainability ambitions.

Antonia Mattos

Head of Energy Research
*Department for Energy Security
and Net Zero (DESNZ)
Science and Innovation for
Climate and Energy (SICE)*



PANEL DISCUSSION

Antonia is the Head of Energy Research at DESNZ, leading a programme of contracted research to provide science and engineering evidence for policy making in industrial decarbonisation and low carbon buildings. Her team also provides technical advice to policy teams, integrating technical insight with policy acumen.

In her previous role, Antonia was a principal consultant at Element Energy, leading technical studies on industrial decarbonisation and CCUS, supporting public and private sectors, including techno-economic modelling and business model design. She advised local and national authorities, as well as international bodies on low carbon energy.

A first-class graduate in physical natural science from the University of Cambridge, Antonia has contributed to major programmes, including Hy4Heat, and shaped deep decarbonisation strategies. Prior to Element Energy, she completed Mars R&D leadership scheme, covering skills in innovation and strategic product development.

Dr Yixian Sun

Associate Professor in
International Development
University of Bath



PANEL DISCUSSION

Dr Yixian Sun is a UKRI Future Leaders Fellow and Senior Lecturer at the University of Bath, leading a £1.7 million project on the sustainability governance of China's global infrastructure investments.

Yixian's research focuses on transnational governance, environmental politics, and sustainable consumption, with a particular emphasis on China's role in global sustainability, including the Belt and Road Initiative.

He is the author of *Certifying China* (MIT Press, 2022) and has published widely in journals such as *Nature Sustainability*, *Global Environmental Change* and *Global Environmental Politics*. Yixian is Associate Editor of *Global Environmental Politics* and *World Development Perspectives*, and serves as a Senior Research Fellow with the Earth System Governance Project. He also contributes to the UN-backed Race to Zero campaign as a peer reviewer.

Dr Joe Goodall

Research Associate
COSMIC Prosperity Partnership
University of Bath



POSTDOCTORAL RESEARCH PRESENTATION

Dr Joe Goodall brings a strong foundation in inorganic chemistry to his research endeavours. He completed his MChem degree at the University of Manchester before pursuing doctoral studies at the University of York, which focused on solid-state inorganic chemistry and developing expertise in the structural and chemical properties of inorganic materials in their crystalline forms.

Following the completion of his PhD, Joe remained at the University of York to undertake a postdoctoral research associate position. During this role, he expanded his research scope to explore the practical applications of solid-state inorganic chemistry in imaging technologies, bridging fundamental chemical research with applied scientific applications.

In 2024, Joe joined the Johnson group at the University of Bath, where he continues to advance his research in inorganic chemistry. His academic journey reflects a commitment to understanding the fundamental principles of inorganic materials while exploring their potential applications in emerging technologies and scientific methodologies.

Dr Ellie Marsh

Research Associate

*HORIZON INBUILT: Advancing Sustainable
Building Practices in Europe
University of Bath*



POSTDOCTORAL RESEARCH PRESENTATION

Dr Ellie Marsh focuses on integrating sustainability assessments into design processes to advance a net-zero built environment. Her research includes the UNCARB project, which addressed uncertainty in building and product carbon footprints, and INBUILT, which is evaluating innovative construction products' environmental performance. These projects have led to collaborations with external institutions including the National Composites Centre, RIBA, and the UK Green Building Council, as well as local work supporting B&NES with sustainable construction planning policy.

Ellie's academic path has taken her from the University of Bath to the University of Cambridge and back to Bath's Department of Architecture and Civil Engineering. She is actively involved in EDI initiatives, undergraduate and postgraduate teaching, supervision, and departmental activities. She contributes to the Institute of Sustainability and Climate Change's Systems Sustainability Research Group and RENEW research centre.

Dr Mark Wilson

Research Associate
*Centre for Climate Change and
Social Transformations
University of Bath*



POSTDOCTORAL RESEARCH PRESENTATION

Dr Mark Wilson is a researcher at the Centre for Climate Change and Social Transformations (CAST), focusing on climate change mitigation, policy and behaviour change.

Mark works with local authorities and voluntary sector organisations to understand public perceptions and encourage low carbon behaviours in different areas of daily life, particularly at the individual and organisational levels.

Mark is currently working with Cornwall Council to explore residents' and employees' readiness to adopt active modes of travel. He also has a strong interest in sustainable food systems, diet and municipal policy interventions to reduce carbon emissions and provide health co-benefits.

Dr Samuel Hampton

Research Fellow
Social Transformations
Institute of Sustainability and Climate Change

Senior Researcher
*Environmental Change Institute
University of Oxford*



RESEARCH PRESENTATION

Dr Sam Hampton is a Research Fellow in Social Transformations at the University of Bath and Senior Researcher in the Environmental Change Institute at the University of Oxford.

Samuel's research focuses on:

- (1) public and business engagement for climate change, including the adoption of low carbon behaviours, lifestyles, and business practices
- (2) policy and governance for net-zero.

Samuel has conducted extensive research on the role of SMEs in the energy transition, and has published in journals such as *Joule*, *One Earth*, *PLOS Climate* and *Energy Research & Social Science*, and has worked closely with policymakers in local and national government.

Professor Cristina García Fontán

Professor
*Department of Urban Planning
Higher Technical School of Architecture*

Coordinator
*People-Environment Research Group
University of A Coruña*



RESEARCH PRESENTATION

Professor Cristina García Fontán is an architect specialising in urban planning and landscape with a PhD and a Master's in Advanced Architecture from the Berlage Institute.

Cristina is a professor at the School of Architecture at the University of A Coruña, where she focuses on architecture and landscape. She is also Coordinator of the People-Environment Research Group, developing international projects on sustainable habitats, territorial planning and global cooperation.

Dr Stephen Doliente

Research Fellow
Sustainable Systems
Institute of Sustainability and Climate Change

RESEARCH PRESENTATION



Dr Stephen Doliente holds a background in chemical and energy engineering from the University of the Philippines Diliman. With over ten years of research experience in sustainable energy and chemical technologies, his research focuses on developing and optimising sustainable energy systems, with particular expertise in biomass technologies and carbon reduction strategies.

Stephen began his career as an experimentalist before transitioning to computational research during his PhD studies. He subsequently moved to the Department of Mechanical Engineering at the University of Bath for his first postdoctoral position, where he contributed to a UKRI-funded Supergen Bioenergy Hub project. He has since completed two additional postdoctoral positions.

Stephen has now joined the Institute of Sustainability and Climate Change as a Research Fellow in Sustainable Systems.

Professor Walter Leitner

Director

*Max Planck Institute for
Chemical Energy Conversion*

Chair of Technical Chemistry
RWTH Aachen University



PLENARY

Professor Walter Leitner is a world-leading expert in catalysis and sustainable chemistry. As Director of the Max Planck Institute for Chemical Energy Conversion and Chair of Technical Chemistry at RWTH Aachen University, he has shaped the field of Green Chemistry through pioneering research in molecular catalysis, carbon dioxide utilisation, and advanced reaction media.

Walter's career spans prestigious academic and industrial collaborations, including serving as Chair of the Editorial Board of Green Chemistry for over a decade. His research focuses on developing efficient catalytic systems for sustainable chemical processes, with particular emphasis on CO₂ as a feedstock and novel solvent systems.

A recipient of numerous accolades, including the Otto Roelen Medal, Wöhler Prize, and the European Sustainable Chemistry Award, Walter continues to drive innovation at the interface of chemistry, energy, and sustainability. His leadership and scientific vision are transforming how we think about resource use in the chemical industry.

Keep in touch



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