



CCnet Newsletter Issue 1

Welcome to our first newsletter

Who Are We?

CCnet is one of 6 new BBSRC NIBB Phase II networks and is a continuation of the Phase I NIBB - C1net. CCnet will not only continue the work done by the previous BBSRC-NIBB C1net, but will also bring in those communities working on photosynthetic (cyanobacteria) and autotrophic CO₂ utilising chassis as well as exploring the potential of anaerobic digestion as a feedstock generator. It provides a cross-sector forum to foster and enhance collaboration between industry and academia.

Progress

CCnet was launched on 1st April 2019 and its first management board meeting took place in May 2019. Since then, we have rebranded our website, created marketing materials, updated our social media pages and commissioned an animation. We have also held a workshop on Responsible Research and Innovation and taken part in two outreach activities. Our membership currently stands at 334 with 556 followers on Twitter.

Upcoming Funding Calls

We will shortly be announcing calls for the first round of our

PROOF OF CONCEPT FUNDING (PoC)

and

BUSINESS INTERACTION VOUCHERS (BIV)

PROOF OF CONCEPT FUNDING (PoC)

Applications will soon be invited for CCnet, Proof of Concept (PoC) funds to support projects of less than 12 months, which is at Technology Readiness Levels 1-4 in this exciting area of Carbon ReCycling.

ELIGIBILITY:

- **CCnet Membership**
- **BBSRC Eligible**

[Click here](#) for more information

Or contact the Network Manager: louise.dynes@nottingham.ac.uk

BUSINESS INTERACTION VOUCHERS (BIV)

Applications will soon be invited for CCnet Business Interaction Vouchers of £10K. They will be used to encourage and support collaboration between academic partners and industrial partners within the CCnet framework and will be awarded to undertake a defined piece of work by the academic partner for the industrial partner.

ELIGIBILITY:

- **CCnet Membership**
- **BBSRC Eligible**

[Click here](#) for more information

Or contact the Network Manager: louise.dynes@nottingham.ac.uk

OTHER FUNDING OPPORTUNITIES

Industrial Biotechnology (IB) Funding round-up:

KTN's IB team have compiled a list of the latest funding calls of relevance to Industrial

Biotechnology.

[More Information](#)

IBioIC Collaborative Training Partnership (CTP) PhD programme-Call for projects:

IBioIC supports industrially relevant PhD Projects that bring biotechnology closer to industrialization. All IBioIC project applications are assessed by way of competition. IBioIC have issued a call for PhD Projects to enter this competition for projects commencing October 2020.

[More Information](#)

Responsible Research and Innovation Workshop

Science and Technology 'LEGO® SERIOUS PLAY®' Workshop: *Public views on using bacteria to make chemicals from waste gases*

On 3rd August 2019, CCnet Member, Dr Carmen McLeod and Dr Eleanor Hadley Kershaw ([SBRC- Nottingham](#), Interdisciplinary Responsible Research and Innovation Group) organised a workshop in order to explore public views on using synthetic biology applications to make chemicals and fuels from waste gases. The workshop used an innovative format, which required the sixteen participants to respond to questions by building models with LEGO. Dr Stevienna de Saille (University of Sheffield), who is a trained Lego® Serious Play® facilitator, led the workshop. Two scientists from CCnet also led a discussion on the work they are doing and also presented our CCnetanimation.

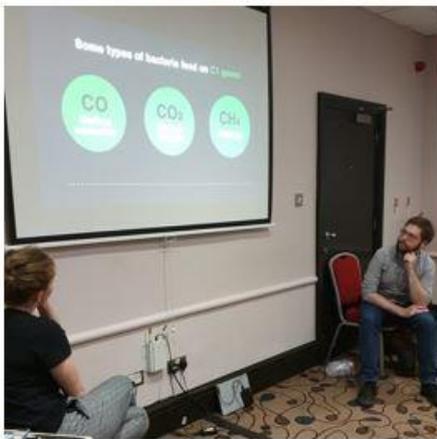
Analysis and findings from the workshop will be shared with scientists, industry partners and management members in [CCnet](#), [SBRC-Nottingham](#), and with two European Projects: [BIOMETCHEM](#), [ENGICOIN](#), with the goal of encouraging further reflection and discussion about ongoing synthetic biology research.

There was positive feedback from the participants at the workshop, who enjoyed both the workshop format and the opportunity to contribute to a discussion about synthetic biology applications.

Workshop feedback examples:

- "It was very interactive and building things from Lego was fun and really showcased your views."
- "I really enjoyed meeting and talking with the scientists"
- "Well-structured discussion allowing everyone to have their say"

CCnet member - Dr James Millard said *"I was pleasantly surprised by the reception our work had from members of the public. They were generally supportive of genetic modification of acetogenic bacteria for the purpose of carbon capture and chemical manufacturing."*



Responsible Research and Innovation blog post

Two members of CCnet have recently written a blog post on:

"A Whole New (re-cycled) World? An interdisciplinary conversation about the Circular Economy, Synthetic Biology and Sustainability Goals"

[Read the Blog](#)

August 21, 2019, by [Brigitte Nerlich](#)

A Whole New (re-cycled) World? An interdisciplinary conversation about the Circular Economy, Synthetic Biology and Sustainability Goals

This is a guest post by [Penny Polson](#), [Carmen McLeod](#), [Sarah Hartley](#) and [Eleanor Hadley Kershaw](#)



Introduction to the Circular Economy

The notion of a 'circular economy' has been gaining a lot of traction lately. The [Ellen MacArthur Foundation](#), in particular, has raised the profile of this radical rethinking of how consumer goods are produced and consumed, aiming for an economy that is 'restorative and regenerative by design'. The circular economy is presented as an evolution from previous movements to incorporate sustainability goals, but with an additional focus on an economy that promotes the continuous circulating and recovering of resources, rather than a linear one, focussed on making, using and disposing.

Events & Activities

2019 Brasil-UK Workshop – Sustainable Chemicals and Fuels through Synthetic Biology

For 3 days in May (28 -30 May 2019) Centro Nacional de Pesquisa em Energia e Materials (CNPEM), Campinas/SP, Brasil became home for this 100 strong, international workshop on [“Sustainable Chemicals and Fuels through Synthetic Biology”](#) Working with Director Eduardo do Couto e Silva and Scientific Director Mario T. Murakami, SBRC-Nottingham (home to CCnet) invited 30 world experts to review and debate the future of chemical and fuel production in a changing world to an audience of more than 70 working scientists from CNPEM and the UK-BR Year of Science and Innovation Programme Lead from the British Consulate in São Paulo, Rui Lopes. The continued use of fossil fuels is no longer tenable. A finite resource, their extraction, processing and exploitation results in environmental pollution and increased greenhouse gas emissions. The challenge facing global societies is to identify sustainable and cleaner processes for chemical, fuel and food production, while at the same time reducing GHG emissions, in particular CO₂. Biological routes offer the most promising alternative where, to avoid conflict with the food chain, attention largely focusses on using waste, lignocellulosic biomass as the feedstock. However, its recalcitrance to deconstruction is making the development of economic processes extremely challenging. Moreover, all currently used commercial, fermentative process are limited to the production of relatively few chemicals and fuels and all result in the net production of CO₂. In the EU, for example, alcoholic fermentations annually produce 6-8 Mtons of CO₂.



The three-day workshop drew together leading UK (17) and Brazilian (7) synthetic biologists and industrial biotechnologists from both academia (22) and industry (5). To broaden the pool of expertise, participants were invited from Argentina (3) and the USA (1). Through the

participation of relevant funding agencies (e.g., BBSRC, FAPESP, and CONICET) from UK, Brazil and Argentina respectively the intention was to formulate a strategy for programmes of work that could form the basis of a future funding call.

WONDER 2019

On Saturday 15th June, the [University of Nottingham](#) threw its doors open to over 5000 curious minds of all ages for a day of hands-on fun at [“Wonder 2019”](#). This year’s Wonder was particularly exciting, celebrating the 150th anniversary of the Periodic Table of the Elements and providing a brilliant way to showcase some of the awe-inspiring work done on campus with more than 100 activities, talks and events. CCnet’s Contribution focused on 'Carbon with our own original board game [“Game of Fuels”](#). Thanks to the help of our CCnet members: Rajan Patel, Jake Yeboah, Gareth Little, Francois Seys, Amaury Montarnal and Jacque Minton. Approximately 224 toddlers, teens and townspeople enjoyed learning about fossil fuels, greenhouse gases, global warming and carbon recycling. 100% of attendees said that they enjoyed the game and thought that they had learned something new. We generally felt a good awareness of the need to find fossil fuel alternatives and perceived considerable support for the research being done.



CCnet Member takes part in 'I'm a Scientist get me out of here!'

"I'm a scientist – get me out of here" is an online event that brings together scientists based in the UK with students aged 10 – 16. In a competition-style format, students ask questions in live chat sessions. I joined the event for a month because I feel very passionately about science - and not just my own scientific efforts, but also about helping the next generation of young scientists. I was challenged with many great questions – some were about science in general (When will the next ice age happen?), some were about my project ("How do you make plastics from CO₂?") Perhaps the best one I was asked about my project was from a thirteen-year-old girl from Northern Ireland. She asked me: "It's great that you make plastics from waste gases and I understand that this is more sustainable, but aren't plastics bad for our oceans?" Having one's own research put into a critical perspective by young students is a fantastic experience that teaches us that even though we may be out of school, we have never stopped learning from others."



Author Info: CCnet member - Christian Gude joined the SBRC DTP in 2016. His BBSRC/EPSC funded project revolves around metabolic engineering of *Cupriavidus necator* to produce precursors for plastic production from industrial waste gases, such as CO₂.

Carbon ReCycling Animation



With the wealth of experience built up over years of talking to the general public and school children, it was decided that the development of a short, simple animation was the way forward. This would ensure our message was delivered consistently, concisely and engagingly, and had the potential to reach a bigger audience through the website and social media. Our Animation has recently been completed and can be viewed online below. Online views currently exceed 100, with viewings not only in the UK, but also in Europe (Denmark, Belgium and Slovenia) and the rest of the world including; India, Brazil and Australia.

[Watch Now](#)

Calendar

9 October 2019

Algae & Environmental Biotechnology
Event (EBNet/Algae-UK)

[Read more](#)

10-13 October 2019

CCnet at New Scientist Live, ExCeL
Centre, London

[Read more](#)

22-23 October 2019

International Biogas Congress &

CCnet Conference 1 Save the Date!

The first CCnet Conference will be:

11th - 12th February 2020

at **East Midlands Conference
Centre, Nottingham**

This FREE, two-day conference will
bring together academic and industrial
partners to identify and address key

Expo, Brussels

[Read more](#)

7-8 November 2019

2nd Annual Synthetic Biology
Congress, London

[Read more](#)

9-10 December 2019

Synthetic Biology UK 2019, Warwick

[Read more](#)

11-12 February 2020

CCnet Conference 1
East Midlands Conference Centre,
Nottingham
Coming soon

challenges in the study of Carbon
ReCycling.

The programme will include talks from
invited speakers from academia and
industry, as well as from
selected submitted abstracts.

[More information coming
soon!](#)

The Last Word

Novo Holdings Invests \$72 Million in Sustainable Products Leader LanzaTech

[Novo Holdings A/S](#) and [LanzaTech](#) a pioneer in the production of next generation fuels and chemicals through the recycling of carbon pollution, announced that they have formed a partnership to grow LanzaTech's revolutionary sustainable fuels and chemicals platform. Novo Holdings is making a \$72 million investment in the company in a Series E financing.

[Read More](#)

Three UK companies join forces to create waste plastic to hydrogen facilities

Peel Environmental has signed a collaboration agreement with Waste2Tricity and PowerHouse Energy which will see 11 waste plastic to hydrogen facilities developed. The £130 million (€140 million) investment follows the announcement that the first facility will be located at Peel Environmental's 54-hectare Protos bioenergy facility near Ellesmere Port in Cheshire.

[Read More](#)

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UK Research
and Innovation



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