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C1Net Conference

Dr Kamelia Boodhoo and Dr Sharon Velasquez-Orta recently attended the 3-day [C1Net conference](#) in Nottingham (20th—23rd January) to present their proof-of-concept project awarded in 2018. They were joined by Prof Flickinger, who is a collaborator on the project based in NC State University in the US.

A total of 125 delegates from a range of academic and industrial institutions attended the event, which aimed to identify and address key challenges in the study of organisms able to grow on C1 compounds and their commercial exploitation as platforms for chemical manufacture. Kamelia and Sharon presented the following talk (pictures on next page):

“Scalable engineering approaches for exploiting a novel biocomposite material applied to light-driven CO₂ absorption and utilization”



Upcoming Conferences

- **2019 AIChE Spring Meeting and 15th Global Congress on Process Safety** (31 Mar-4 April 2019, New Orleans, Louisiana, US).
- **ChemEngDayUK** (8-9 April 2019, Heriot-Watt University, Edinburgh, UK). Abstract deadline: **25th Feb 2019**
- **4th Green and Sustainable Chemistry Conference** (5-8 May 2019, Dresden, Germany). Poster abstract deadline: **8th March 2019**
- **International Symposium on Green Chemistry, ISGC2019** (13-17 May 2019, La Rochelle, France). Poster abstract Deadline: **15th April 2019**
- **2nd International Process Intensification Conference (IPIC²)** (27-29 May 2019, Leuven, Belgium). Early Registration Deadline: **15th March 2019**
- **13th International Workshop on Polymer Reaction Engineering** (11-14 June 2019, Hamburg, Germany)
- **9th International Conference on Algal Biomass, Bio-fuels & Bioproducts** (17-19 June, Boulder, CO, USA). Abstract deadline: **1st Feb 2019**
- **3rd International Congress of Chemical Engineering** (19-21 June 2019, Santander, Spain). Currently accepting abstracts
- **12th European Congress of Chemical Engineering** (15-19 Sep 2019, Florence, Italy). Abstract Deadline: **28th Feb 2019**
- **2019 AIChE Annual Meeting** (10-15 Nov 2019, Orlando, Florida, US). Abstract Deadline: **12th April 2019**



Dr Kamelia Boodhoo (L) and Dr Sharon Velasquez-Orta (R) presenting their research at the C1Net Conference

THE BBTC IMPACT EVENT 28th February 2019

The BBTC, Newcastle University's industrial doctoral training centre in bioprocessing and biotechnology, will hold a networking event on 28 February 2019 at the Great North Museum: Hancock to mark the end of the centre.

This event will bring together Newcastle academics and the bio, pharma and processing industry. The event will showcase not just the BBTC but highlight as well Newcastle University's research expertise in all relevant disciplines ranging from chemical and civil engineering to biotechnology and bioinformatics.

The BBTC set out to tackle industrial challenges in bioprocessing moving over time into other process industries, like consumer goods, oil and gas. The centre's common research approach is the implementation of Quality by Design and process control; BBTC research projects aim to understand, measure, model, interpret and hence manipulate biological and/or process systems. Many projects led to enhanced production, fast inline control monitoring or optimised plant cleaning procedures resulting in economic and ecologic benefits. Much of the research expertise is still present.

For more information on the BBTC, the Impact Event and how to register click [here](#).

PIG News

- Congratulations to Abbas Umar who passed his PhD viva on Thursday 24th January. His research focused on the use of algae bio-composites for carbon capture.
- Dr Kamelia Boodhoo has been appointed as an Editorial Board Member of [BMC Chemical Engineering](#), an open access, peer reviewed journal published by Springer Nature. Two of the areas covered by this journal that are of particular interest to the PI group are: “*Process Design, Optimization and Intensification*” and “*Sustainable Chemical and Biochemical Processes*”

New Process Intensification Journal

The Journal of Advanced Manufacturing and Processing (JAMP) is a new journal of the AIChE, focussing on PI. This represents further evidence of the burgeoning interest in PI in the US, following the 2017 launch of the \$120M “RAPID” institute, run by the AIChE, and jointly funded by government and industry. The first issue is due in [April 2019](#), and they are open to submissions now (although probably for issue 2).

Announcements

- The 2nd European Forum on New Technologies, part of a new series of events run by the European Federation of Chemical Engineering (EFCE), will take place on 1st March 2019. Whereas the first event covered “3D Printing & Chemical Engineering”, the 2nd event will focus on “Digitalization in Chemical Engineering”. Digitalization has the potential to change the way we work in chemical engineering. In particular, it is likely to change the way the process industries work with the potential of big data and its analysis to make industrial operations and supply chains more responsive. The preliminary programme can be viewed [here](#).
- CPACT are offering ‘free registration bursaries’ to students who submit poster abstracts to the APACT 19 conference. The abstracts can be submitted in a broad range of areas; a non-exhaustive list includes: *Process Intensification*, *Process Control and Optimisation*, *Design of Experiments*, *Fast Process Scale-Up*, *Chemometrics*, *Flow Reactors*, *Continuous Manufacturing* and *Process/Bio-process Modelling*. Further information on the abstract format can be found [here](#). Alternatively, abstracts can be emailed directly to admin@cpact.com along with: (i) applicant name, (ii) career stage, and (iii) reason for attending the conference and relevance to your work. The current submission deadline has been extended to [Friday 15th February 2019](#).
- The UK National Heat Transfer Committee will be running a one-day workshop on: “Heat Transfer Research, Education and Practice in the UK” on 25th April 2019 at the Roundhouse in Derby, UK. The objective of the workshop is to bring together Academia with Industry to discuss current status, needs and outlook for the Heat Transfer field in the UK. The workshop is supported by the Institution of Mechanical Engineers, the Institution of Chemical Engineers, the Heat Transfer Society and will be co-located with the Thermal Engineering Show. More details can be found [here](#).



UK National Heat Transfer Committee

The 16th UK Heat Transfer Conference, organised under the auspices of the UK National Heat Transfer Committee, will be held at the University of Nottingham on 8-10th September 2019.

The Conference Chairman, Professor Yuying Yan is pleased to invite researchers and practitioners from academia and industry to submit extended abstracts describing original research in line with one of the [Conference themes](#).

The extended deadline for abstract submission is on Friday 15th February 2019.

More information is available on the [conference website](#).

We are looking forward to seeing you in Nottingham!



The Second International Process Intensification Conference (IPIC2) will take place as a stand-alone conference, unlike IPIC¹ which was held in conjunction with the 10th World Congress of Chemical Engineering (Barcelona 2017). IPIC² will be an excellent opportunity to learn about recent implementations in industry, the latest advances in research, and the current offer from technology providers. Furthermore, discussions on the state of the art and future perspective of process intensification will keep you updated on future trends. We specifically reach out to our colleagues in other continents to build a global PI community.

A number of presenters in IPIC² will be invited to publish their results in a Special Issue of Chemical Engineering and Processing: Process Intensification (CEP:PI) and a Special Issue of the Journal of Advanced Manufacturing and Processing (JAMP).

New Publications

- A. Abbas, L.T. Mariana, A.N. Phan. *Biomass-waste derived graphene quantum dots and their applications*. Carbon 140 (2018) 77-99
- S.M.R. Ahmed, R. Law, A.N. Phan, A.P. Harvey. *Thermal performance of meso-scale oscillatory baffled reactors*. Chemical Engineering and Processing: Process Intensification 132 (2018) 25-33
- S.M.R. Ahmed, A.N. Phan, A.P. Harvey. *Scale-Up of Gas-Liquid Mass Transfer in Oscillatory Multiorifice Baffled Reactors (OMBRs)*. Ind. Eng. Chem. Res. (2019). Article In-Press. DOI: 10.1021/acs.iecr.8b04883
- L.S. Diaz-Silvarrey, A. McMahon, A.N. Phan. *Benzoic acid recovery via waste poly(ethylene terephthalate) (PET) catalytic pyrolysis using sulphated zirconia catalyst*. Journal of Analytical and Applied Pyrolysis 134 (2018) 621-631
- T. Ekins-Coward, K. Boodhoo, S. Velasquez-Orta, G. Caldwell, A. Wallace, R. Barton, M.C. Flickinger. *A microalgae biocomposite-integrated Spinning Disc Bioreactor (SDBR): Towards a scalable engineering approach for bioprocess intensification in light-driven CO₂ absorption applications*. Ind. Eng. Chem. Res. (2019). Article In-Press. DOI: 10.1021/acs.iecr.8b05487
- V.H. Grisales Diaz, M. von Stosch, M.J. Willis. *Butanol production via vacuum fermentation: An economic evaluation of operating strategies*. Chemical Engineering Science 195 (2018) 707-719
- J.R. McDonough, M.F. Oates, R. Law, A.P. Harvey. *Micromixing in oscillatory baffled flows*. Chemical Engineering Journal 361 (2019) 508-518
- A. Mustaffar, A. Phan, D. Reay, K. Boodhoo. *Concentric annular heat pipe characterization analysis for a drying application*. Applied Thermal Engineering 149 (2019) 275-286
- A. Rehman, V.C. Eze, M.F.M. Gunam Resul, A. Harvey. *Kinetics and mechanistic investigation of epoxide/CO₂ cycloaddition by a synergistic catalytic effect of pyrrolidinopyridinium iodide and zinc halides*. Journal of Energy Chemistry 37 (2019) 35-42
- A. Rehman, A.M. Lopez Fernandez, M.F.M. Gunam Resul, A. Harvey. *Highly selective, sustainable synthesis of limonene cyclic carbonate from bio-based limonene oxide and CO₂: A kinetic study*. Journal of CO₂ Utilization 29 (2019) 126-133
- J. Tsu, V.H.G. Diaz, M.J. Willis. *Computational approaches to kinetic model selection*. Computers and Chemical Engineering 121 (2019) 618-632

Other Information

- Full contact details and research profiles for the PI group members can be found at the website: <http://pig.ncl.ac.uk>
- For enquires about collaborations or PhD study, see the website: <http://pig.ncl.ac.uk>
- If anyone would like to contribute any articles, or if anyone has any ideas regarding the newsletter please contact Jonathan McDonough: jonathan.mcdonough@ncl.ac.uk