

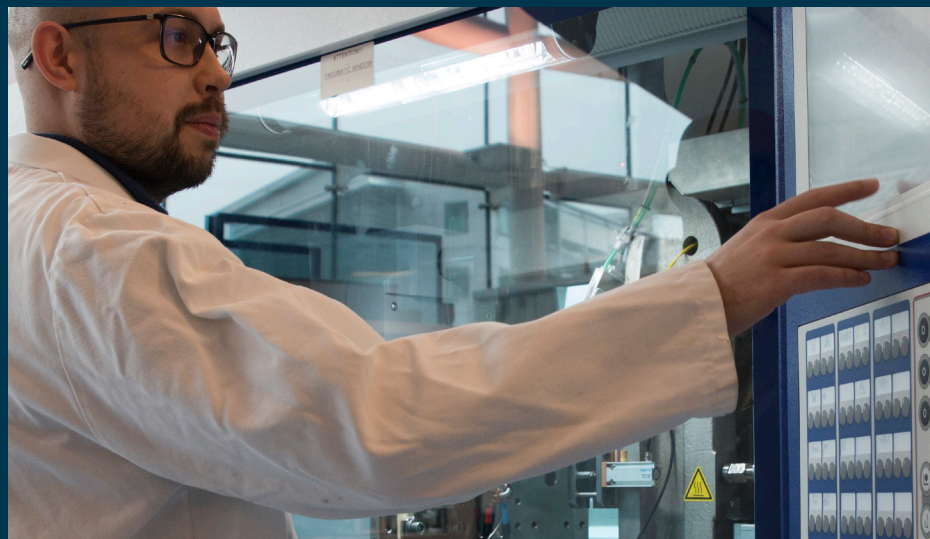


UNIVERSITY of
BRADFORD

Faculty of Engineering
& Informatics

Faculty of Engineering and Informatics Newsletter

December 2021



Welcome from the Dean

As we enter the winter seasonal holiday, it is a natural time to slow down and reflect on the past year. Where on earth do I start with 2021? We have all been on the dreadful Covid-19 rollercoaster along with the rest of society, and as the year closes we are on another lap with the Omicron variant. I want to sincerely thank everybody in the Faculty for getting us through this year, and especially for successfully overcoming the very serious health and wellbeing Covid-19 obstacles and restrictions that have faced all of you in undertaking your role at the University. The recent graduation ceremony was a great example of how much your efforts are appreciated by our stakeholders, in this case our students and their families.

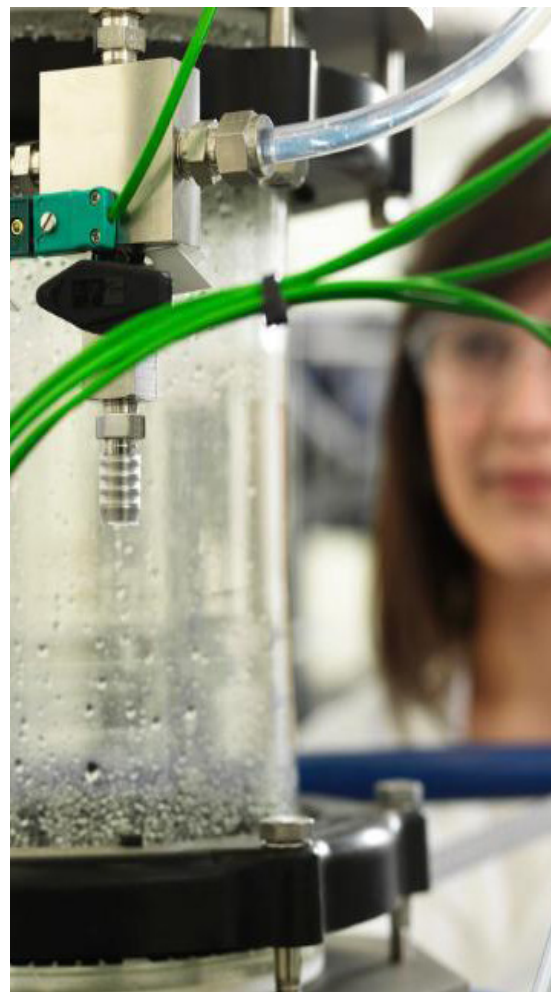
There have been some notable achievements this year and I would particularly like to remind you of our success in achieving an Athena SWAN Bronze Award and completing much more substantial and inclusive submissions to REF2021 (Research Excellence Framework 2021) than was possible for REF2014. I would like to thank you all for your support and contribution to the Faculty and the University of Bradford in 2021.

My very best wishes for the forthcoming holiday season and a Happy New Year.



Newsletter summary:

1. Academic in profile
2. RKT News (grants applications, open calls, presentations and awards)
3. Staff and Students' news



Queen's Anniversary Prize

The University has been awarded a Queen's Anniversary Prize for Higher and Further Education for its world-leading work in developing archaeological technology and techniques and its influence on practice, policy, and society in the UK and across the world.

The announcement was made by the Royal Anniversary Trust by kind permission of Her Majesty the Queen, and a reception was held for all award winners at St James' Palace, London.

The prestigious accolade, which honours world-class excellence and achievement, is the highest form of national recognition that UK higher education institutions can achieve.

More [here](#)>>

Academic in profile:

Prof Phil Coates



Professor Phil Coates FEng is a Physics graduate of Imperial College, London. His PhD research was on solid phase deformation processing of polymers (Leeds University) with Prof Ian Ward FRS. Prof Coates is Professor of Polymer Engineering (1990 onwards) and was elected a Fellow of the Royal Academy of Engineering in 1995. He was Pro-Vice Chancellor for Research & Knowledge Transfer at the University of Bradford for 7 years (2004-11). He is Director of the internationally recognised Polymer Interdisciplinary Research Centre (IRC) (across Leeds, Bradford, & Durham Universities from 1989, plus Sheffield in 2003), with researchers at Bradford at the leading edge of in-process measurements for process monitoring, analysis and control, and computer modelling, in a 4500 m² laboratory, which hosts 3 of our RKT Centres. He has published over 600 papers, 7 books and 11 patents, and is Chief Editor of the IoM3/ Taylor & Francis journal, *Plastics, Rubber and Composites: Macromolecular Engineering*. He has run Polymer Process Engineering, a biennial international conference hosted at Bradford, since 1985, and UK-China Advanced Materials Research Workshops since 2012.

He directs the Advanced Materials Engineering RKT Centre, with research emphases on solid phase orientation of polymers for enhanced performance polymers, medical technology including bio-engineering and drug delivery, energy technologies, precision processing, and circular economy approaches for up-cycling polymers. His research has substantial support from UK Government sources (particularly EPSRC, but also with Innovate UK and KTPs) and industry. EPSRC support includes a range of polymer engineering, healthcare technology and polymer recycling projects, a major EPSRC Capital grant, and several international cooperation awards, particularly with China. He has collaborated with over 150 companies from the USA, Europe, the Middle East, China, Australia and Japan, with current support from Dyson, Sinopec, and Sabic, and recent Autodesk Moldflow, Dow, Invibio, Kimberly Clark and Smith & Nephew contracts. He has extensive international cooperation with academics in China, the UK, Europe, N America, India and Japan. He directs the RCUK Bradford Science Bridges China/ EPSRC Global Engagements programme – a government sponsored collaboration (which has achieved over £17m total UK and China support to date) with over 20 Chinese Universities focussed on advanced materials for healthcare technologies. He is an Honorary Professor of Sichuan University (2008 on) and Beijing University of Chemical Technology (2009 on), and a Molecular Sciences Forum Professor at the Institute of Chemistry, Chinese Academy of Sciences, Beijing and CIACAS Changchun (2009 on), with many high quality joint publications with these groups.

He has recently received a range of international honours -the Chinese National Science & Technology Award for International Cooperation 2017; the International Innovation Award of the Polymer Processing Society 2017; the Society of Plastics Engineers International Award 2018. Previous awards include the Institute of Materials (IOM3) Netlon Gold Medal for Innovation in Polymer Processing (1999); the Plastics Industry Award for personal contribution to the industry (2006) and the IOM3 Swinburne Award (2008).



Current research interests:

- Structuring polymers by melt and solid phase processing
- Polymers in healthcare technologies

Research projects:

Prof Coates has won over 220 grants and contracts of value over £55 million total to date from UK Government sources. 83 of these grants are from UK Government (particularly EPSRC). Current support includes EPSRC grants in healthcare technologies (shape memory fixations) and low carbon processing research, plus major Dyson and Sinopec contracts.

Research and Innovation

Projects pipeline:

- Computer Aided Organ Quality Assessment for Efficient Decision Making, Hassan Ugail
- Adopting Circular Economy Business Model for Resource efficiency in ICT industry (ACE4ICT), Dhaval Thakker
- Programmable and Intelligent Meta-Surface Walls for Smart Healthcare, Raed Abd-Alhameed
- Development of a Linguistic and ML conversational agent to assess language cognition for healthy ageing population and dementia, Kulvinder Panesar
- Environmentally benign polymer packaging materials and systems, John Sweeney
- Programmable self-healing inspired layered deposit Kavian Cooke



17th Annual Rosa Parks Symposium

The University of Bradford is proud of its innovative, comprehensive and cohesive approach to equality, diversity and inclusion. The Centre for Inclusion and Diversity celebrates the life of Rosa Parks on an annual basis and reflects on the implications of her contributions to the race equality agenda.

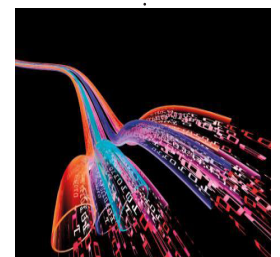
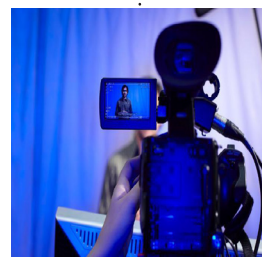
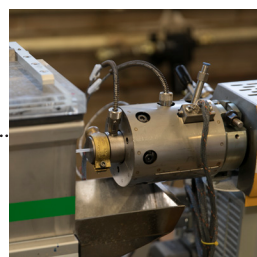
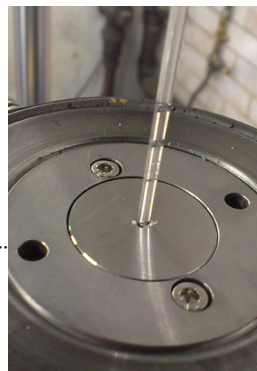
Recent racist attacks on black footballers during the 2020 UEFA European Football Championship and the culture of racism in the Yorkshire County Cricket Club makes discussing this theme imperative.

The event took place on 7th December and answered questions as: How would Rosa Parks react to these events? Would she keep silent? What would you do in these situations?

More details of these events are available [here>>](#)

Open calls for funding:

- [Build a network to enable resilient solutions for future UK systems](#), Closing date: 1 February 2022 16:00 UK time
- [Developmental pathway funding scheme](#), Closing date: 23 March 2022 16:00 UK time
- [Digital manufacturing](#), Closing date: 3 February 2022 16:00 UK time
- [Automotive Transformation Fund expression of interest: round 17](#), Closing date: 12 January 2022 11:00 UK time



Staff and Students' news

WIRED interviews Prof Ashour in the article 'This concrete can eat carbon emissions'

The article discusses the concrete CO₂ emissions issue and how some companies are using it to sequester CO₂ instead.

Ashraf explained the root cause of the concrete CO₂: "The main issue with concrete is the production of cement, because if you want to get a cement, you need to have clinker."

Alongside Ashraf, Chris Stern (Carbocrete's CEO) was interviewed. Carbocrete is a carbon negative company which uses CO₂ captured from industrial processes in concrete by injecting it to react to form calcium carbonate, or limestone. Curing with CO₂ also saves water. "Ordinary Portland cement based concrete products consume around 2.6 trillion litres of water annually," says Solidia CEO Bryan Kalbfleisch.

Ashraf introduced the Bradford approach, which requires neither heat nor water. In geopolymer concrete, an aluminosilicate-rich material reacts with an alkali chemical solution, hardening into a concrete-like polymer. "Geopolymer needs an alkali activator – sodium hydroxide, calcium hydroxide – and at the same time it needs what we call precursors," explains Ashour. "We are using construction and demolition waste."

More [here](#)>>



The conversation publishes Mark Goodall's article on The Beatles

The article analyses the reaction to the 1969 documentary 'Let It Be' that includes footage of the legendary band rehearsing and recording songs for their 12th studio album but also the rooftop concert, their last public performance together.

The British Film Institute's Monthly Film Bulletin regarded the documentary as "rather tedious" and the response to the accompanying album was covered in the New Musical Express by journalist Alan Smith who said the record would stand as a "cheapskate epitaph, a cardboard tombstone, a sad and tatty end" to a glittering and epoch-defining musical career. The documentary series by director Peter Jackson has re-imagined the film in three lengthy and detailed segments. Thanks to an array of fresh footage, Jackson's film sheds new light on this period and the band.

Read more [here](#)>>



The Beatles: Get Back and the music seeing chords become anthems

December 3, 2021 11:35am GMT

Staff and Students' news

14th UK-China AMRI Research Workshop

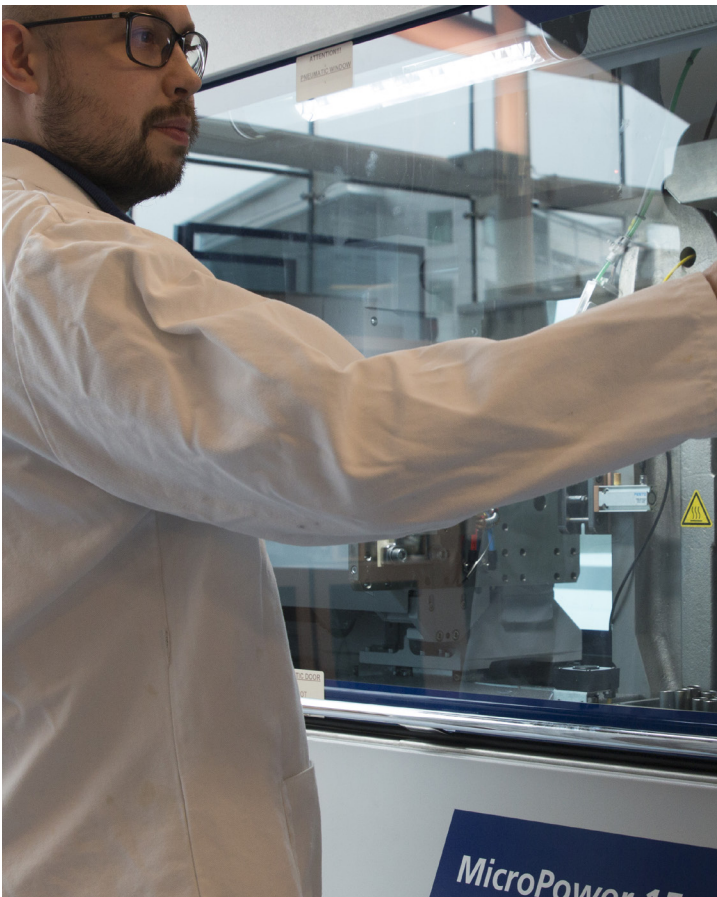
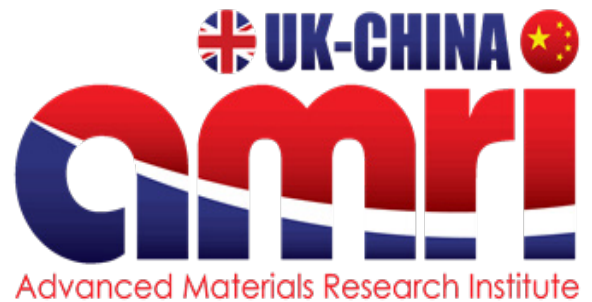
The Workshop featured 11 scientific presentations from UK and Chinese universities and industry on the topics of Medical Technology, Advanced Materials and Oriented Polymers

The keynote presentations were given by Tony Herbert, Leeds University, Xia Dong, Beijing, ICCAS and Ajay Taraiya, from SABIC.

The following presented from Bradford:

- Bana Shriky - Thermosensitive Injectable Smart Hydrogels for Controlled Drug Delivery System Development
- Max Babenko - Microneedles characterisation and testing
- Nehnah Siddique - Microbial Degradation of Phosphate Functionalised Polyurethanes.

More about AMRI [here](#)>>



Staff and Students' news

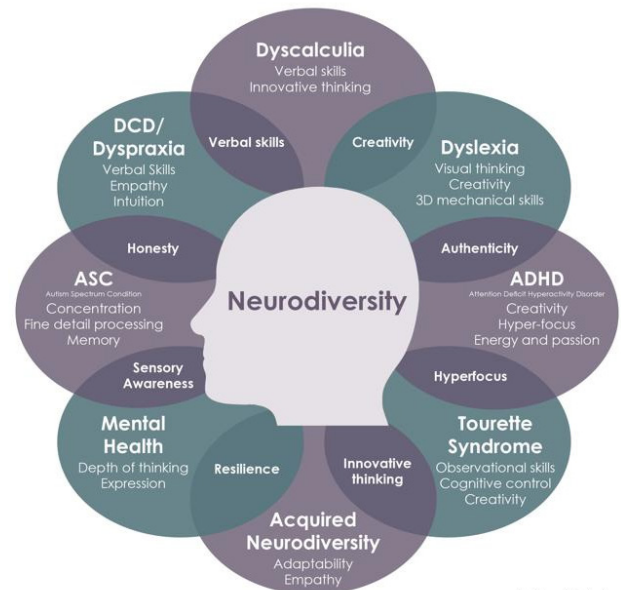
Neurodiversity at Work

The event on 10th December was part of Disability History Month.

The event looked at what neurodiversity is and how we can support the staff that self-identify as neurodivergent.

Neurodiversity is a term used to describe natural variations in the human brain. It relates to differences in the way we think, process, learn and behave. Most people are neurotypical meaning that the brain functions and processes in the way that society expects. 1 in 7 people are neurodivergent meaning their brain functions differently in one or more ways than is considered standard or typical. Their unique traits are often characterized as 'neurodiverse conditions'.

More about the Neurodivergent Staff Network [here](#)>>



Dr Nancy Doyle, based on th

Dr Nejat Rahmanian outreach activities

Dr Rahmanian received a certificate of services for his guest editorial work for the journal of Sustainability. The journal addressed the main issues of Carbon Footprint and the way that chemical engineers can address the challenges.

Nejat is an external examiner for the Masters programme in Process Safety and Loss Prevention (PSLP) at the University of Sheffield. Lessons learned from this role will feed into the Chem Eng Dept and the Faculty to enhance relevant modules.

On the 1st December 2021, on graduation day, Mr Jaime Chauhan who worked under the supervision of Dr Rahmanian received the title of the best MEng Research Project in the Department. The student faced major challenges due to Covid-19 – changing from a project which was completely experimental-based to one which was a pure simulation project. Thanks to Andrew Zjawinski from the IT team the project was completed successfully. Left image - Mr Chauhan and Dr Rahmanian.



Staff and Students' news

Dr Kit Zhang - General Chair ACM conference

The 2nd International Workshop on Deep Learning for the Web of Things (DLWoT 2022) runs in conjunction with the Web Conference ACM 2022 and focuses on the web technologies for the combination and interoperation of the IoT with the web of data. Developers can use the techniques of WoT to collect the sensing data and control the devices via different IoT standards and specifications for the applications of agriculture, energy, enterprise, finance, healthcare, industry, public services, residency, retail, and transportation.

The paper Submission Deadline is 3rd February, 2022.

More [here](#)>>

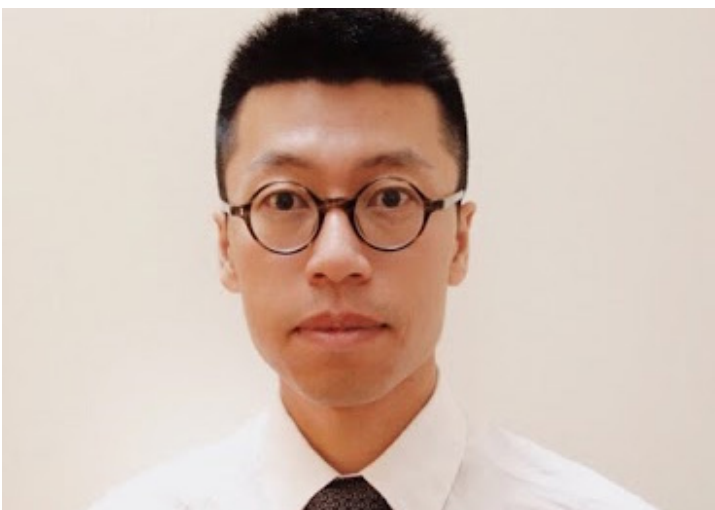


Reclaim the Night March

On 10th December University and Bradford College staff and students departed on a march from the campus into Bradford to highlight the 'Reclaim the Night' initiative to eliminate violence and harassment against women and girls.

Speeches were given throughout the march by representatives from the University of Bradford, White Ribbon, and Bradford Cyrenians.

More [here](#)>>



Staff and Students' news

QS World University Rankings

QS World University Rankings are used by many students and industry to compare the world's top universities and explore leading institutions by region and subject.

Our University, which last year was ranked 601 from 1000, is encouraging faculties to try to improve this ranking by returning all relevant external engagement information.

Please add your new connections with academia or industry [here >>](#)

QS WORLD UNIVERSITY RANKINGS BY SUBJECT | 2021



Early Career Research Seminar (ECRF)

Dr Yakubu John gave a talk on 'Petroleum Crude to Chemicals'.

The forum discussed the structure of next year's ECRF meetings.

Our next meeting is on 19th January 2022, 12 noon, and is followed by a 'Shut-up and write' session.

More [here>>](#)



