



UNIVERSITY of
BRADFORD

Faculty of Engineering
& Informatics

Faculty of Engineering and Informatics Research and Knowledge Transfer Newsletter

March 2020



Welcome from the Dean

In the past week we adapted to difficult and rapidly changing circumstances. I have seen so many excellent examples of innovative solutions to the many and varied challenges we faced.

A big thank you to everyone for adapting so quickly to the new operating environment we suddenly find ourselves in, which any emergency business continuity plan I could have conceived of even six months ago, could not have fully prepared us for. It is very clear that our Faculty response to this situation, in terms of actions and reporting, has been high quality and timely to all our stakeholders. A huge thank you from me to every member of the Faculty and those in central services that support our operations.



Our position on Coronavirus (COVID-19)

The University of Bradford is now operating virtually, and with staff and students now working and studying from home, we still want to keep the Team Bradford spirit well and truly alive.

To do this, we are going to be creating a 'virtual campus' with a host of activities to keep everyone as happy and as sociable as possible during what is a really difficult time for many.

There are so many things that make us all proud to be part of Team Bradford but our close-knit community is one of the most important and this will help to ensure we do not lose that.

For more information visit:
www.bradford.ac.uk/news/coronavirus/wellbeing/

Newsletter summary:

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



Academic in profile:

Professor Dennis Lam



Dennis is Chair in Structural Engineering in the Faculty of Engineering & Informatics, and the Director of Bradford Centre for Sustainable Environments, one of the leading research groups in this area worldwide. Before joining academia, he was the Chief Structural Engineer for the City of Wakefield and spent more than ten years in engineering practices with an extensive experience in structural design of buildings using steel, concrete and composite structures.

Dennis research interests are in steel-concrete composite structures with a special focus on the sustainable built environments and re-use. He is actively involved with Tsinghua University, Hong Kong Polytechnic University, he is the President of the Association for International Cooperation and Research in Steel-Concrete Composite Structures (ASCCS), a learning society that disseminates research in steel-concrete composite structures by organising the ASCCS International Conference series.

Dennis believes that research and high-quality teaching go hand in hand, all his research work feeds directly into his teaching, which he hopes to inspire our students into a future career in structural engineering.



Current research areas include:

- steel structures
- steel-concrete composite structures
- precast concrete
- fibre reinforced polymers.

Active projects:

- REBUILD - Regenerative Buildings and products for a circular economy (EPSRC)
- Structural and Fire Resistance of a Reusable Steel/Concrete Composite Floor System (EPSRC)
- Reuse and Demountability using Steel Structures and the Circular Economy (RFCS)
- Slim-Floor Beams - Preparation of Application rules in view of improved safety, functionality and LCA (RFCS)

Research and Knowledge Transfer

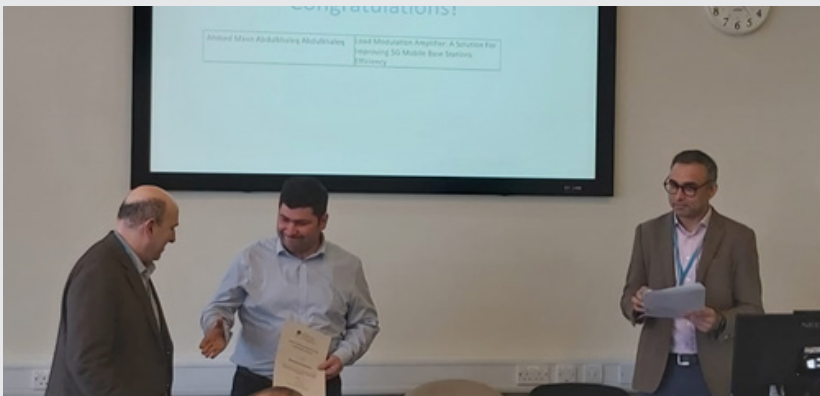
Submitted projects:

- Newton International Fellowships, Self-healing bioengineered geopolymer for sustainable infrastructure, Prof Ashraf Ashour
- Newton International Fellowships, Design and fabrication of microfluidic chip to investigate Tumor microenvironment and anti-cancer loaded nano-carriers on droplet based synthesized tumour spheroids, Dr Farshid Sefat, Dr Mansour Youseffi, Dr Mojgan Najafzadeh
- RS International Collaboration Awards, Some key issues in developing offshore wind energy in China, Dr Yakun Guo



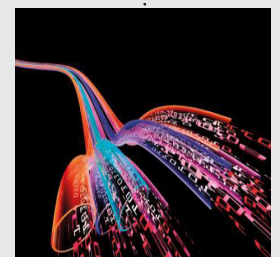
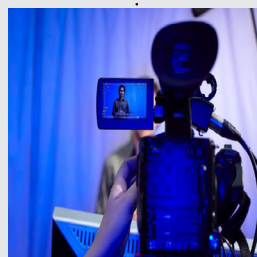
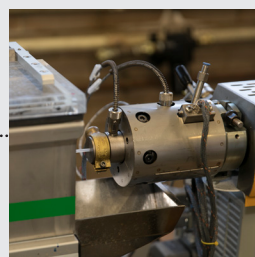
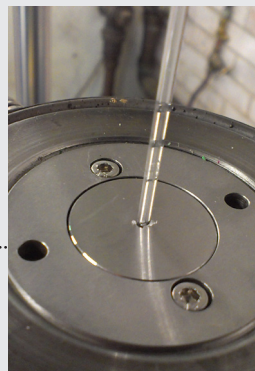
FEI Seminar Series:

- The February winner of the seminar series award is Ahmed Maan Abdulkhaleq Abdulkhaleq presenting his work on Load Modulation Amplifier: A Solution For Improving 5G Mobile Base Stations Efficiency. The prize was presented by Prof Felician Campean and Dr Dhaval Thakker.
- This month presentations:
 1. Adham Saleh on “Mutual Coupling Reduction of Dual-Band Printed MIMO Antenna Using Neutralization Line and Defected Ground Structure Techniques”
 2. Kabiru Maiyama on “Performance Analysis of Virtualisation in Cloud Computing Platforms”
 3. Alanood Alsarayreh on “Modelling, Simulation, Optimisation and Thermodynamic Analysis of Multi-stage Reverse Osmosis Process-based



Open calls for funding:

- Innovation and Knowledge Centres: Follow-on Funding 16 April 2020 at 16:00
- Enabling Research in Smart Sustainable Plastic Packaging, closes 16 June 2020 at 16:00
- Discipline hopping in information and communication technologies, no closing date
- Healthcare Technologies: Call for Investigator-led Research Projects, no closing date



Staff and Students' news

New Staff/Students

Dr Lena Yuryna Connolly (L.YurynaConnolly@bradford.ac.uk) conducts research in the areas of cryptocurrency, cybercrime, and policing crime. Before joining the University of Bradford, Lena worked as Research Fellow at University of Leeds and University College London, and as Lecturer at the National University of Ireland, Galway with the Business Information Systems group.



Mert Gulcur (m.gulcur@bradford.ac.uk) is a micro-manufacturing engineer who worked as a Marie-Curie Fellow for MICROMAN project under supervision of Prof. Ben Whiteside at the Centre for Polymer Micro and Nano Technology. Mert will continue to work with Ben on the EU HIMALAIA project (<https://himalaia-project.eu/>) where they will develop and demonstrate the industrial relevance of the first up-scalable, adaptable, industrially relevant, cost-effective manufacturing platform that will allow the mass-production of functional structured surfaces.



PhD success:

- PARISI Luca - Prof D Neagu, Prof Felician Campean
- RIBEIRIO Jose- Prof Raed Abd-Alhameed, Prof S Shepherd
- SANGODOYIN Abimbola - Prof Irfan Awan
- DANJUMA Isah - Prof Raed Abd-Alhameed, Dr Jim Noras
- EYA Nnabuike - Prof Raed Abd-Alhameed, Dr Jim Noras
- STEELE John - Prof I Mujtaba
- HAMEED Khalid - Prof Raed Abd-Alhameed, Prof S Shepherd
- MODU Babagaba - Dr S Konur

Congratulations
to supervisors and
students
for the high quality
work!



Staff and Students' news

Publications:

Dr Bana Shriky and Prof Tim Gough showed in the *Journal of Colloid and Interface Science/ Elsevier Inc.* how gels from everyday household consumables can revolutionise drug delivery and save lives!

Gels can be tailored to deliver a fully controlled release lifesaving medications, according to a new study. In their latest study, a team of scientists from the University of Bradford led by Professor Tim Gough investigated the properties of smart hydrogel formulations for future use as injectable controlled drug carriers. The gels are prepared from a safe, biodegradable and cheap polymer using a simple two-step process. The systems can be injected as drug-loaded solutions directly to the area of interest – during hip, knee or shoulder surgeries. This allows access to locations difficult to reach with conventional delivery systems. After injection, these watery solutions instantly transform to a soft gel depot releasing a drug over a specified time ranging from hours to weeks. Once the dose is delivered, the hydrogel is metabolised safely by body tissues.

The 'Smart' hydrogels targeted drug delivery method promises to reduce the number of drugs doses, their side effects and the frequency. This will reflect positively on the patient's experience and the health care system, saving a lot of unnecessary costs. The authors say these gels can be easily engineered to deliver different drugs over a pre-specified time so matching an individual patient's needs. They expect it to benefit post-operation and patients with chronic illness.

The paper's first author, Dr Bana Shriky predicts a complete controllability of these drug delivery systems by simple formulation tweaks and changes in injection parameters. 'The one shot gel injection is easy to administer by health care professionals. The gel can be tailored to fulfil the clinical need and reduce patients suffering' she says.

The team hope to utilise the gel's amphiphilic nature (oil and water 'loving') for the delivery of both oil and water soluble drugs in one injection thus eliminating the need for separate drug administration. The collaborative work used state-of-the-art characterisation methods to study the internal structure of the gel network at the University of Bradford and the STFC's Rutherford Appleton laboratories.

- Authors: Bana Shriky, Adrian Kelly, Mohammad Isreb, Maksims Babenko, Najet Mahmoudi, Sarah Rogers, Olga Shebanova, Tim Snow, Tim Gough
- Link to the publication: <https://bradscholars.brad.ac.uk/handle/10454/17634>
- Email: B.Shriky1@bradford.ac.uk



New PhD projects:

Title: A research proposal on security, privacy and data protection issues for iot dependent smart cities and homes

Candidate: Saad Alharthi





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