Happy New Year!

2019 looks to be an exciting year as we continue to grow, both in size and scope, as the only department of our kind in a UK University. 2018 saw our unique MEng and BEng in Engineering Mathematics welcome the first cohort of over 80 students in First Year. We look forward to seeing them mature into fully fledged data scientists and mathematical modellers. Advanced notice: in 2020 we are planning a celebration for 40th anniversary of our first ever graduates.

The first cohort of 15 students on the new MSc in Engineering Mathematics is due to graduate at the February degree ceremony. This course has proved popular for those with a first degree in Mathematics seeking training that is close to industrial application, as well as those from Engineering or Computing backgrounds to learn modern relevant mathematics. The second cohort of 25 students has begun the taught part of the course. The Department also leads the interdisciplinary MSc in Robotics, with input from across the Faculty of Engineering and run jointly with the University of the West of England. The course has become extremely popular, in part due to the excellent Bristol Robotics Lab facilities in North Bristol. More than 70 students completed the programme in 2018, and the latest cohort size is over 100.

The Bristol Engineering Mathematics Society (BEMS) has re-branded itself and continues to arrange popular events; most recently a lively panel discussion for those interested in studying for a PhD. We are proud of just how many of our undergraduates catch the bug of doing research, and continue either to study for a higher degree or to work in R&D or entrepreneurial activity within industry, large or small. A number of colleagues have recently been involved in bids to the EPSRC call for Centres for Doctoral Training. The result is currently embargoed, but we expect positive news. Another exciting development is that we are due to have a visit from the Institute of Engineering and Technology (IET) accreditation panel in Spring 2019, as we are seeking accreditation of our programmes that would enable our graduates to become Chartered Engineers in addition to Chartered Mathematicians as present, through the Institute of Mathematics and its Applications (IMA).

Alan Champneys. Head of Department.

New appointments

Two inspiring new lecturers are joining us in 2019

Hermes Gadêlha

Hermes works at the intersection between different branches of mathematical science, biology and industry. His research focuses on understanding unexplained phenomena and their unusual connections, encompassing human and animal reproduction, microbial swimming and infection, cellular mechanics, bio-inspired devices and microfluidics. His work on understanding sperm motility has attracted particular media attention. Originally from Brazil, he did a DPhil at Oxford, and worked as a Research Fellow at both Cambridge and Oxford. Most recently, he has been a Lecturer in Applied Mathematics at York University.

Cameron Hall

Cameron joins our Department from being a Lecturer in Industrial and Applied Mathematics at the University of Limerick. Originally from Australia, he received a DPhil from Oxford where he was also a Research Fellow. His expertise spans industrial mathematics, asymptotic analysis, solid mechanics and mathematical biology. He has significant expertise in organising Mathematics Study Groups with Industry, a sort of mathematics hackathon on which our own Mathematical and Data Modelling units are based. Cameron recently won an award for being the best lecturer in the University of Limerick.
The "right" trousers

Where Robotics meets Healthcare. Jonathan Rossiter, Royal Academy of Engineering Research Professor in our Department, leads the hugely successful "SoftLab" research group. His team is conducting an exciting project to develop robotic trousers that can help the physically impaired to stand up or sit down at the push of a button.

The £2 million project, supported by the state-funded Engineering and Physical Sciences Research Council (EPSRC), aims at producing a pair of lightweight 'power trousers' that can boost the strength of muscles and joints by up to 10%. Yes, the "right" trousers, not Wallace's wrong ones!

The “intelligent clothing” will use artificial muscles, made from plastic-like molecules and smart materials which can exert great forces. Jonathan and the wearable soft robotics team he leads (picture below) aim at having these devices available to people with mobility issues within 10 years, helping them to move around without a wheelchair and increasing their independence and confidence.

Jonathan’s research has been recently featured in the Guardian, the Sun, BBC, as well as other media outlets. To find out more and to follow the progress of the research, stay tuned at https://therighttrousers.com/.

A spotlight on ... outreach

Engagement with schools, outside agencies and the general public is a key part of our work. As part of the outreach activities of the School of Electrical and Electronic Engineering, Engineering Mathematics and Computer Science (SCEEM), we have been involved over a number of years with Digimakers: hands-on digital skills workshops for children aged 7-18 at the We The Curious science centre in Bristol Harbourside. www.digimakers.co.uk

We also help run sessions for the Headstart summer schools which provide hands-on Science, Technology, Engineering and Maths (STEM) taster courses to year 12 students, to prepare them for technology-based careers. There is also the Access to Bristol scheme that provides similar opportunities on a weekly basis to local pupils.

We have strong links to MEI mei.org.uk, the national charity who run Advanced Mathematics Support Network among other things. We’ve run teacher workshops with them and produced mathematical modelling teaching resources (freely downloadable from our website - try them!). This year we also joined their Problem Solving Matters scheme in which year 12 students from state-funded schools, academies and colleges are invited to three sessions over the Summer with our students to give insight into university mathematics.

Sarah Taylor-Knight

I’m currently in my third year of the MEng Engineering Mathematics programme, and working with the SCEEM Outreach team has been one of the highlights of my career at university. My first involvement was through the Digimakers events, including introducing people to Micro:bits. From there I became a STEM Ambassador, and worked as a mentor for a number of HeadStart events at UoB, and later became a tutor on the MEI Problem Solving Matters scheme. My most positive experience has been working with patients in the Bristol Royal Hospital for Children, bringing workshops into the adolescent wing and giving the patients in there a chance to try something new, and have some fun!

And finally ...

We have just heard that a Mathematical and Data Modelling 2nd year project on "Quantitative analysis of approaches to group marking" undertaken by James Roff, James Keen, Chester Robinson and Hugh Harvey has been accepted for publication in the journal Assessment and Evaluation in Higher Education. Congratulations lads!