QUEEN'S UNIVERSITY BELFAST

# Queen's University Belfast Social Charter Newsletter

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## Queen's teams up with Oliver Jeffers and creative partners to create 10km model of the Solar System

An epic 10km scale model of our solar system is being created by Oliver Jeffers and experts at Queen's University's Astrophysics Research Centre.

The Our Place in Space project is being led by the Nerve Centre with creative partners from the worlds of science, technology and the arts. It was commissioned by UNBOXED with Belfast City Council and is part of a ground-breaking UK-wide celebration of creativity in 2022.

Designed by artist and children's author Oliver Jeffers and supported by Professor Stephen Smartt from Queen's University's Astrophysics Research Centre, the unique 10km sculpture and walking trail will illustrate the size and scale of our solar system.

It will encourage the public to think of our place in the Universe and the outdoor project will be accompanied by an AR app, and a range of educational and cultural events across Northern Ireland.

## Research with Impact:
## New computer modelling could boost drug discovery

Scientists from Queen's University have developed a computer-aided data tool that could improve treatment for a range of illnesses.

The computer modeling tool will predict novel sites of binding for potential drugs that are more selective, leading to more effective drug targeting, increasing therapeutic efficacy and reducing side effects.

The data tool or protocol will uncover a novel class of compounds – allosteric drugs in G protein-coupled receptors (GPCRs).

GPCRs are the largest membrane protein family that transduce a signal inside cells from hormones, neurotransmitters, and other endogenous molecules. As a result of their broad influence on human physiology, GPCRs are drug targets in many therapeutic areas such as inflammation, infertility, metabolic and neurological disorders, viral infections and cancer. Currently over a third of drugs act via GPCRs. Despite the substantial therapeutic success, the discovery of GPCR drugs is challenging due to promiscuous binding and subsequent side effects.

***"We have developed a novel, cost-effective and rapid pipeline for the discovery of GPCRs allosteric sites, which overcomes the limitations of current computational protocols such as membrane distortion and non-specific binding. Our pipeline can identify allosteric sites in a short time, which makes it suitable for industry settings. As such, our pipeline is a feasible solution to initiate structure-based search of allosteric drugs for any membrane-bound drug targets that have an impact on cancer, inflammation, and CNS diseases."***

*Dr Irina Tikhonova, School of Pharmacy, Queen's University Belfast*

## Queen's University celebrates innovation in manufacturing

Queen's University has celebrated the relaunch of the Northern Ireland Advanced Composites and Engineering Centre (NIACE), which is integral to the 10x Economy Plan for Northern Ireland.

NIACE is the regional Centre of Excellence for innovative composites manufacturing Research and Technology and is delivered by a partnership between Queen's University Belfast, Ulster University and the National Composites Centre. NIACE is supported by Invest Northern Ireland, Spirit AeroSystems, BEIS and industrial members.

During the event to re-launch the Centre, an MOU was signed between Queen's University, Ulster University and the Royal Academy of Engineering in relation to collaboration in innovation and enterprise.

NIACE is entering a new phase with additional investment and new partnerships with key national organisations.

## Education with Social Purpose:
## Open Botanic Report launched

Queen’s researchers have launched a report looking at an active and healthy street strategy for Botanic Avenue in Belfast.

The team spent close to one year in a research and engagement exercise to measure travel modes in Botanic Avenue and to assess the difference between perceptions of cycling, walking and driving among local residents, visitors, businesses and organisations.

The 'Open Botanic' report is available to download by clicking on the image below.

## Equality and Excellence:
## Black History Month Events Continue

The Queen's University Students' Unions African and Caribbean Society continues its programme of events for Black History month with two further upcoming in the next week.

The BAME Round Table takes place on **Wednesday, 27 October at 6.00pm** with an open panel discussing the term BAME and what it means to different people.

On **Friday, 29 October at 6.00pm** there will be a private showing of *Looking Back Thinking Black* with Ciarán Harper.  The Q&A session will hear how Ciarán's work has been inspired by diaspora and how this is translated into art.

For more information on either, click on the image below.

## Breaking Boundaries to Produce New Knowledge:
## Researchers call for armchair astronomers to help find unknown hidden worlds

Astronomers at Queen's University Belfast have launched a new online initiative, calling for volunteers to come forward and help to search for extrasolar planets.

The online citizen project, hosted by Zooniverse.org, Planet Hunters Next-Generation Transit Search (NGTS), is enlisting the help of the public to examine five years' worth of digital footage showing some of the brightest stars in the sky.

The footage was captured by twelve NGTS robotic telescopes based at the European Southern Observatory (ESO) Paranal Observatory in Chile – they make high precision measurements, sensitive enough to detect the signatures of exoplanets.

There is no application process to join the Planet Hunters NGTS project. Anyone with a web browser can dive right into the data and start searching for these possible hidden worlds and helping to check the best candidate planets identified on the website.

The website is available **HERE**

## Experts call for computing to become more like the human brain to protect planet

Computer hardware needs to be transformed to become more like the human brain if we are to lower greenhouse gas emissions and avoid future water shortages, a Queen's University expert has said.

Professor Roger Woods from Queen's leads eFutures, a UK-national network, which commissioned an independent report to tackle the global challenge of making computing sustainable.

The report's findings suggest that the answer to the problem is to re-design computers to work more like the energy efficient human brain.

Globally, computing is a major contributor to greenhouse gas emissions. Research predicts that it could drain more than 20 per cent of the world's total electricity usage by the time a child born today reaches their teens. In contrast, the human brain is astonishingly power efficient – it takes just 20 watts to rapidly complete complex tasks that computers are currently not capable of.

***"With COP26 taking place later this month, the findings of this independent report are timely. We need to act now to reduce the carbon footprint of computing, including that generated by AI, and machine learning and its algorithms – it is a global necessity. More than 70 data centres are housed in Ireland alone, with each of these using up to 500,000 litres of water per day. In Summer, this led to a water shortage in the country."***

*Professor Roger Woods, Faculty of Engineering and Physical Sciences, Queen's University Belfast*

## Civic Culture and Intercultural Dialogue:
## Crisis in Afghanistan - Reflections and Analysis from a Queen's University Expert

Michael Semple, Practitioner Chair at the Senator George J Mitchell Institute for Global Peace, Security and Justice at Queen's University, has been one of the most authoritative voices on Afghanistan for many years.

In interviews and published analyses recently, he has again offered well-informed insights into latest developments and future prospects.

The first episode in the new series of the Mitchell Institute Conversations Podcasts is now available. In this episode, Professor Michael Semple discusses the recent Taliban takeover of Afghanistan, examines the causes of the upheaval and asks what the future might hold.

To listen or to find out more, click on the image below.

## NI universities come together for the Festival of Social Science 2021

Queen's and Ulster University come together once again for the annual Festival of Social Science 2021.

This year, the Economic and Social Research Council (ESRC) Festival of Social Science in Northern Ireland will run from 1-30 November and will feature 21 free events organised by social science academics from both universities.

Now in its 19th year, the Festival includes a mixture of virtual and in-person talks, screenings workshops and walking tours offering the public the chance to see first-hand how social science shapes both our working and our everyday lives. Coinciding with COP26, the UN Climate Change conference, there will be several events looking at the impact of climate change and calling for greater climate action.

For more information, click **HERE**

## Sustainability:

## New Queen's University Bike Hub partnership gets into gear with focus on sustainability

Queen's University Belfast has launched a Bike Hub in partnership with social enterprise Big Loop Bikes, to increase access to cycling for staff, students and the wider south Belfast community.

The hub has been part-funded by Belfast City Council and the Department for Infrastructure and Department for Communities through the Covid-19 Recovery: Revitalisation Programme 2020-21.

At the launch Belfast Lord Mayor, Councillor Kate Nicholl, joined Vice-Chancellor of Queen's University Professor Ian Greer and Richard Good, Director of the Turnaround Project, the charity which runs Big Loop Bikes as part of its work in engaging the community to support people on their journey out of the justice system.

The Bike Hub, which opened at the start of the academic term and has already proved popular with students and staff, sells refurbished bikes and offers bike leasing and a range of servicing options.

## New species named by Queen's expert to be protected in sustainability project

A Queen's University researcher who led a team which discovered a rare new species of oyster is working on a biodiversity project with academics in Malaysia to ensure that it is protected.

Dr Julia Sigwart from the School of Biological Sciences at Queen's, a mollusc taxonomist, and colleagues have named the new species Crassotrea (Magallana) saidii. The oyster species, the subject of a research paper published in Marine Biodiversity today, was discovered during a collaboration with academics at Universiti Putra Malaysia aimed to increase the oyster population in the Muar River in the state of Johor, south of the Malay Peninsula.

Although local fishers have known about this species, which lives in one tiny estuary and may be threatened by urbanisation, since around the 1860s, it has not been officially named until now as scientists were unconvinced it differed from a similar, more common species until DNA testing took place.

## Recognising and Rewarding Contributions from Staff and Students:
## Queen's Student Wins Prestigious UK Nurse of the Year

Third-year mental health nursing student Mairead Ryan has been awarded Nursing Student of the year at the prestigious RCN Nursing Awards 2021.

These awards acknowledge the outstanding efforts, commitment and achievements made by the whole of the nursing community across the UK.

Mairead is a dedicated mental health campaigner and advocate who has led a number of initiatives to promote positive mental health, to increase awareness of addictions and offer insight about the affect mental illness has on families.

Outside of her studies in mental health nursing, Mairead undertakes a number of voluntary roles dedicated to improving mental health services in Northern Ireland and beyond. She is part of the "MyStoryYourStory" campaign, an innovative and evidence-based campaign that uses storytelling to empower people with lived experiences to use their story for personal and societal change. The campaign recently led to mental health becoming an integrated part of the curriculum for all schools across Northern Ireland.

Royal College of Nursing
NURSING AWARDS
Brought to you by RCNi

## Queen's Professor contributes to Expert Committee established to assist Creating Our Future

Creating Our Future is a government-led national brainstorm that will involve the people of Ireland in a conversation on the role research can and should play in addressing opportunities, challenges and hopes for the future. Creating Our Future will ensure that the direction of research in Ireland is informed by the people it serves.

The newly established committee, composed of experts across a range of research disciplines, will lead the analysis and interpretation of submissions from the public dialogue. Under their leadership, five multidisciplinary Expert Working Groups will soon be established to support the analysis of the public's submissions.

Professor Jose Bengoechea, Centre Director from the School of Medicine, Dentistry and Biomedical Sciences at Queen's University Belfast, has been appointed as a member of the Expert Committee