



University of
Strathclyde
Glasgow

Images of Research

The Future in Focus

Welcome



I am delighted to welcome you to **Images of Research 2017: The Future in Focus**.

The images you see before you offer a glimpse of the pioneering research being carried out across the University's four faculties.

Aligning with the launch of the University's new strategic themes, this year's competition categories – **Advanced Manufacturing and Materials; Energy; Health and Wellbeing; Innovation and Entrepreneurship; Measurement Science and Enabling Technologies; Ocean, Air and Space; Society and Policy** – reflect the breadth and relevance of the University's research, which takes place on a local, national and international scale.

As a leading international technological university, we pride ourselves on academic excellence with impact. The compelling images on display provide an insight to the wealth of our research that will pave the way for new products and services, inform decision-making, influence policy, improve health and support sustainable economic growth in today's world.

This year's competition, "The Future in Focus" - and the resulting exhibition - celebrate the diversity of research across the University; how we are striving to improve social, mental and physical wellbeing, meet the technological, manufacturing and sustainability challenges facing industry, and make significant contribution to societal policy, both locally and globally.

The Images of Research exhibition is part of the Engage with Strathclyde Programme - a week-long celebration of the University's partnership with the public, private and third sectors. I hope you will join us for some of our other events so we can tell you more about the story behind the pictures.

We have also launched an online gallery of the images, before the exhibition goes on tour around other venues in Scotland. I hope these innovative and imaginative images illustrate the depth and range of research taking place at the University of Strathclyde, and encourage you to engage further with us.

Best wishes,

A handwritten signature in black ink that reads "James McDonald". The signature is fluid and cursive, with the first name "James" being larger and more prominent than the last name "McDonald".

Professor Sir Jim McDonald
Principal and Vice-Chancellor

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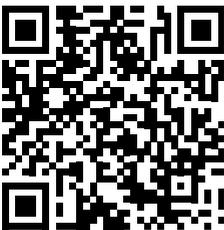
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Images of Research 2017

Images of Research is an annual competition for research students and staff which showcases Strathclyde’s innovative work through compelling images. The images form an exhibition during Engage with Strathclyde 2017, a week-long programme celebrating and promoting the University’s partnership with businesses, public and third sector organisations. The collection then embarks on a roadshow across venues in Scotland, as well as visiting the EU Parliament for the European Innovation Summit, and forms an online gallery.

The 41 shortlisted entries – comprising an image and short story – illustrate the big societal issues being tackled by researchers across our four faculties – Engineering, Humanities and Social Sciences, Science and The Strathclyde Business School.

The competition and exhibition is sponsored by Engage with Strathclyde and Strathclyde’s Researcher Development Programme.



For more information and to view all of the competition entries in an online gallery please visit

[www.imagesofresearch.strath.ac.uk/
visit_exhibition.htm](http://www.imagesofresearch.strath.ac.uk/visit_exhibition.htm)

Meet the Judges

Professor Tim Bedford



Professor Tim Bedford is Associate Principal of the University, leading the Research and Innovation portfolio and representing the University in discussions with Government and other public bodies. He convenes

the University Research and Knowledge Exchange Committee and, with colleagues, is developing University strategy in research and innovation. Professor Bedford also provides leadership to cross-faculty initiatives such as the Technology and Innovation Centre and the University Strategic Themes.

He led the development of the University Strategy for Innovation, and is currently leading work around the vision as a Leading International Technological University. In addition he is one of the key figures in the Glasgow Science and Innovation Audit.

In his role as Professor of Decision and Risk Analysis, Professor Bedford continues to teach, supervise PhDs and conduct research in probabilistic risk analysis, uncertainty modelling, reliability and maintenance modelling, structured expert judgement and decision analysis.

Kat Hannah



Kat Hannah is Acting Head of Media and Corporate Communications at the University of Strathclyde, working with colleagues across the organisation to cement Strathclyde's reputation for world-class research, education and innovation.

She has more than 15 years' experience in a communications environment, and joined the University in 2006 as Press Officer, forging close links with media and partner organisations. In 2011, she was appointed as Corporate Communications Manager, developing and delivering multi-channel communications strategies for the University and its major projects. A former journalist, Kat was a Reporter for the Lancashire Evening Post and Senior Reporter at Cumbrian Newspapers group before joining Network Rail's Government and Corporate Affairs directorate.

She is a Member of the Chartered Institute of Public Relations.

Richard Macfarlane



Richard MacFarlane currently works as a National Trainer for Jessops Europe Limited. Jessops Academy provides many opportunities to put his photography knowledge into practice tutoring courses from Level 1 to Landscape, and Motorsports to Macro.

More recently he has been training teachers in the SQA Higher Photography Course. Photography keeps him busy six days a week, when not working with Jessops, he teaches Photography and works in Digital Marketing at Hamilton College. Previously to this, Richard worked as a Samsung Representative, Nikon Area Manager, self-employed photographer and school photographer for Pret-A-Portrait. On a voluntary level he has worked as a judge for many photography clubs, the My Place Photography Competition and now for Strathclyde.

Category winners



Advanced Manufacturing and Materials

WINNER

Colours of drug polymorphism

Submitter: Monika Warzecha
Department: EPSRC Centre for Innovative Manufacturing in Continuous Manufacturing and Crystallisation



HIGHLY COMMENDED

Rust forensics

Submitter: Athanasios Anagnostakis
Department: Mechanical and Aerospace Engineering



Energy

WINNER

Powering business, fuelling change

Submitter: Aran Eales
Department: Electronic and Electrical Engineering



Health and Wellbeing

WINNER

Inner sorrow, outer smile

Submitter: Laura Del Carpio
Department: Psychology



Innovation and Entrepreneurship

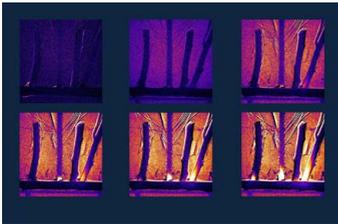
WINNER

More than just a garden

Submitter: Tracy Morse

Department: Civil and Environmental Engineering

Collaborators: Dr Tara Beattie



Measurement Science and Enabling Technologies

WINNER

Hidden water paths of plants

Submitter: Roberta Dainese

Department: Civil and Environmental Engineering

Collaborators: Alessandro Tengattini, Institute Laue Langevin/Grenoble University (image processing)



Ocean, Air and Space

WINNER

Monitoring under the watchful saint

Submitter: Samuel Grainger

Department: Civil and Environmental Engineering

Collaborators: Sam Bates "Smug" (Mural Painter), Nicola Massey and Fiona Sutherland (Co-workers)



Society and Policy

WINNER

Social media and you

Submitter: Petya Eckler

Department: School of Humanities

Collaborators: Deyan Stoev (photographer)



HIGHLY COMMENDED

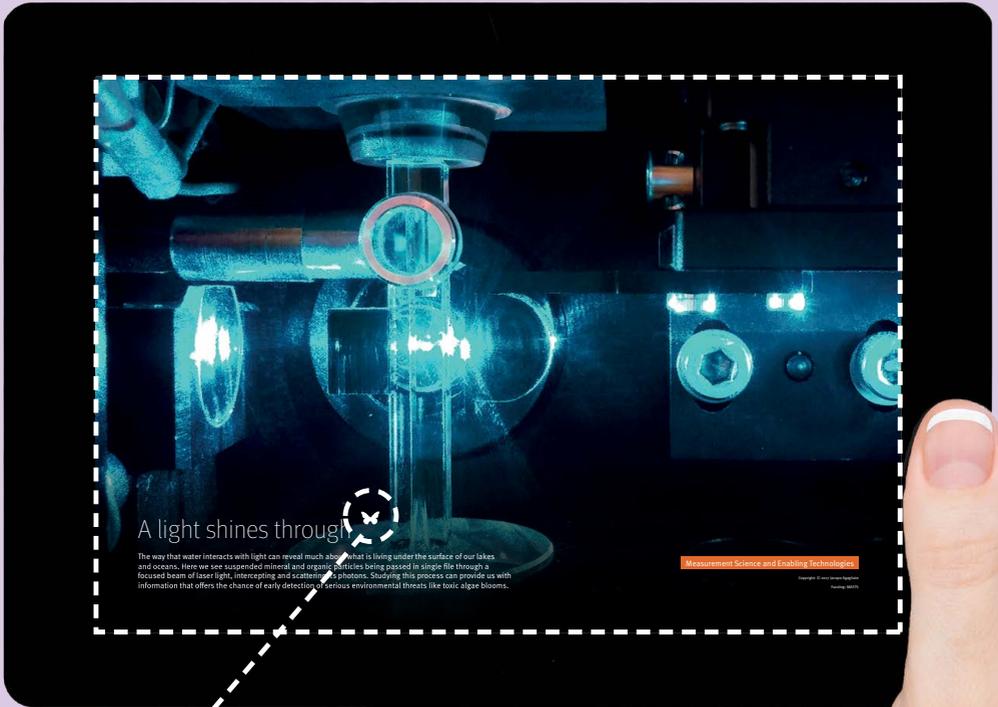
Venice or Lima?

Submitter: Maddalena Iovene

Department: Architecture

HOW TO WATCH A DIGITAL STORY

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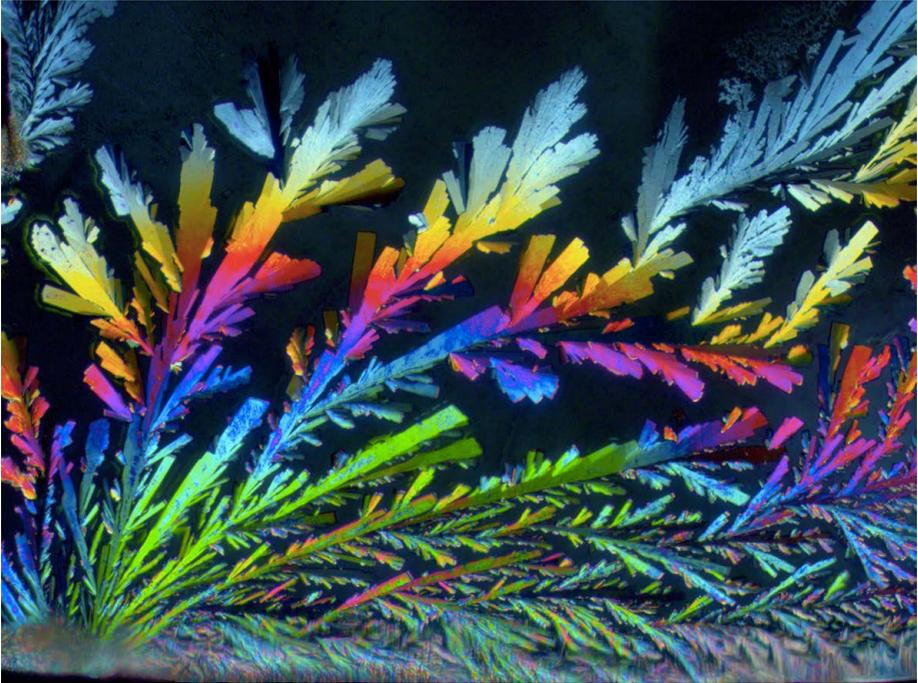
Get the App and search for our channel
"imagesofresearch01" and follow us to view the auras.

Advanced Manufacturing and Materials



Beyond smart factories

Increasingly 'smart' factories and products are constantly collecting a wealth of data through the entire product lifecycle. Designers and manufacturers can develop better products by considering data collected beyond the factory walls, as well as from internal sources. Our research seeks to provide a better understanding of how crucial insights from that data could be applied for better decision making, increased productivity and sustainability in the design and manufacturing process.



Colours of drug polymorphism

This image shows crystals of olanzapine – a drug used to treat bipolar disease, which affects more than 50 million people worldwide. During crystallisation, molecules can arrange themselves in different forms. The speed at which these ‘polymorphic’ forms dissolve varies dramatically, impacting the body’s ability to absorb the drug and stabilise the patient. Our research focuses on developing robust methods to control polymorphism, ensuring the drugs can do their job effectively.

© 2017 Monika Warzecha

WINNER

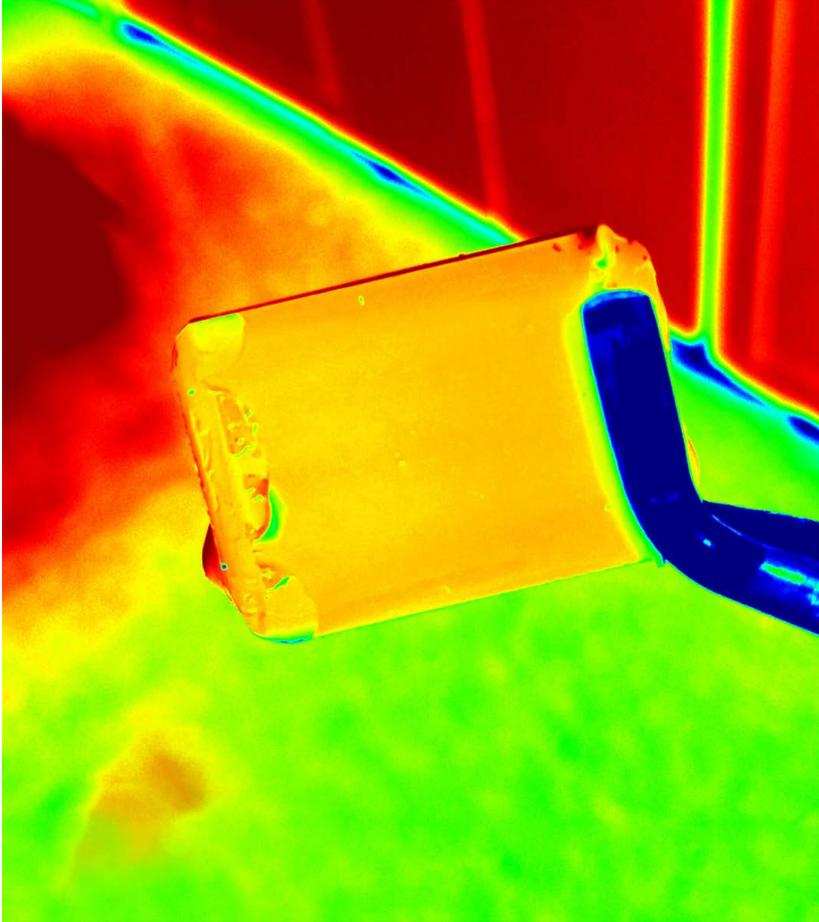


Rust forensics

How can destroying materials help us to learn how to make them stronger? Our research focusses on understanding how rust and fatigue affect metals, the damage they cause and where and how cracks begin to show. By actually causing rust, we can study the ways in which it weakens metal and use that knowledge to help develop early warning systems, or to improve the metal's properties, significantly extending its life.

© 2017 Athanasios Anagnostakis

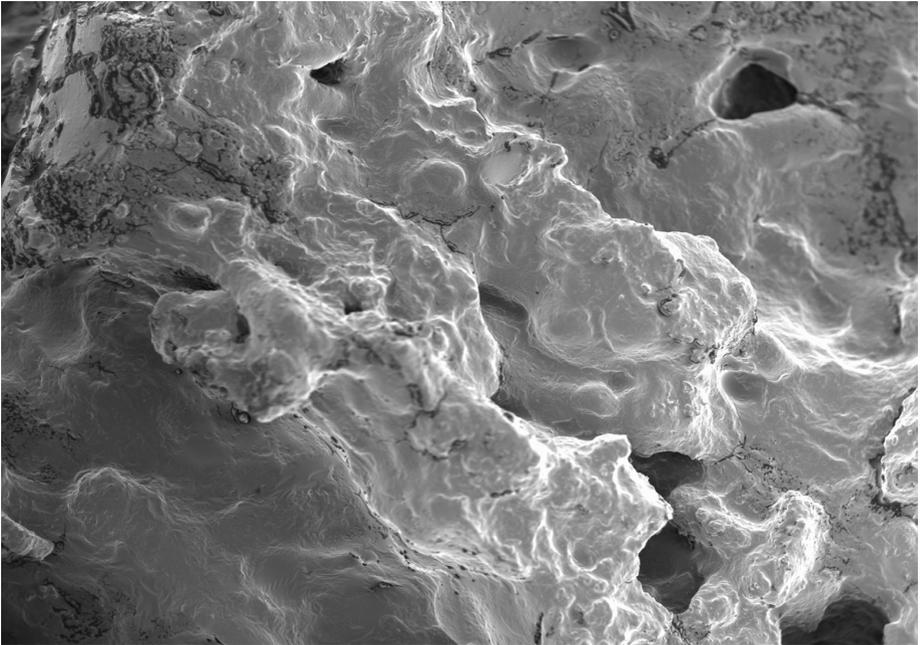
**HIGHLY
COMMENDED**



Advanced materials and smart coatings

Chaucer said “time and tide wait for no man”. Today we harness the tide to power our homes and workplaces, but the relentless passage of time threatens that achievement, gradually eroding our tidal turbines. At Strathclyde we’re working to produce advanced materials like smart coatings with super low friction for wear, which sense corrosion and take steps to repair damage, ensuring turbines continue generating renewable energy for years to come.

© 2017 Rafee Abdulmajeed Rafee Ahamed



‘Free-from’ matters

‘Free-from’ foods are increasingly in demand due to a rise in the diagnosis of digestive diseases and other lifestyle improvement needs. However, many of these products are not nutritionally balanced or even particularly enjoyable to eat. By exploring how food molecules interact – through the study of their chemical, mechanical and thermal properties – we are aiming to improve product textures and reduce ingredients, benefitting taste buds and purses alike.

© 2017 Francesca Laitano

Energy



Where will your car charge?

Charging stations like this represent the way of the future. Electric cars are getting cheaper, quieter and cleaner, and ownership is expected to rise sharply. But is our existing power network capable of keeping thousands of cars charged and on the road? Our research identifies designs for connecting these vehicles to our infrastructure that will ensure the success of a widespread, affordable shift to this sustainable mode of transport.

© 2017 Kyle Smith



The turbulent life of turbines

Have you ever tried to keep hold of an umbrella as it gets pulled in different directions on a gusty day? Similarly, while strong winds enable wind turbines to increase power production, changeable winds can place undue stress on the turbine blades. Our research is looking at ways of reducing the loads placed on turbine blades by developing control systems that can monitor and react to changing conditions.

© 2017 Rohaida Binti Hussain



Deforestation in the kitchen

A major cause of Malawi's severe deforestation is the felling of trees to produce charcoal for household cooking, but the problem doesn't stop there. Pollutants from wood and charcoal burning cook-stoves, used in most households, gravely impact on health. Our Energy for Development group works with Malawian non-profit organisations on several renewable energy projects, including conducting energy audits and deploying improved cook-stoves, which in turn reduce deforestation and improve health.

© 2017 Aran Eales

<https://www.wevideo.com/view/904495223>





Off-grid

Today 1.2 billion people live without electricity. Unable to connect to the national grid due to their remote location, these people rely on fuelwood and kerosene for cooking and lighting, resulting in 4 million deaths each year from indoor pollution. Strathclyde engineers are working to design, build and install systems that provide clean, renewable off-grid electricity, transforming the lives of some of the world's most vulnerable, poor and isolated people.

© 2017 Mike Dolan



New heights for wind power

Why build towers to hold up wind turbines when they can hold themselves up?

By using lightweight kites, costs are dramatically reduced and turbines can reach high altitudes where stronger, more consistent winds can be found, increasing the reliability of power generation. Our research on this concept could take wind power to new heights, further decreasing our reliance on fossil fuels.

© 2017 Rod Read



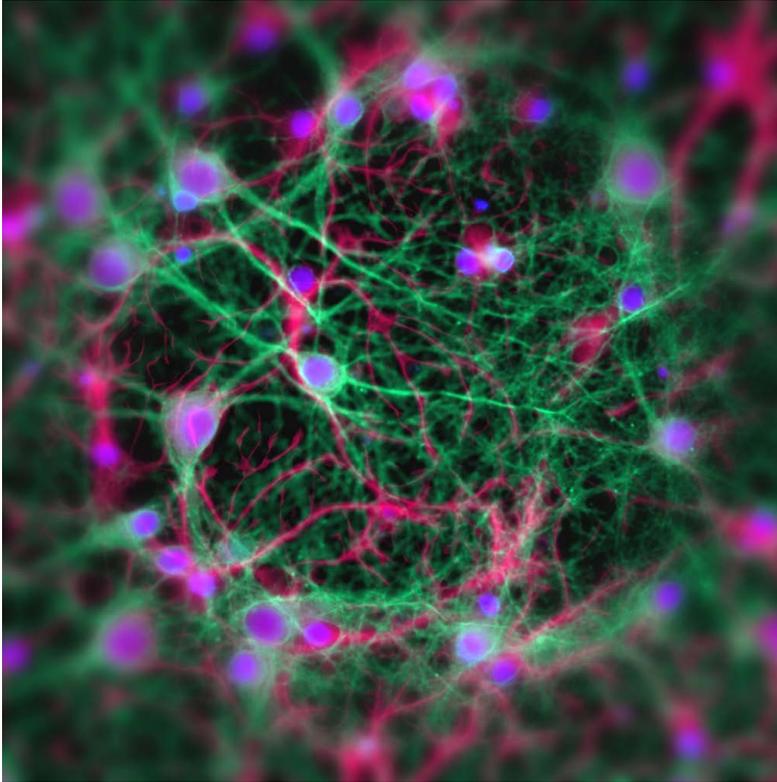
Powering business, fuelling change

Mobiles, computers, the internet...in the increasingly connected world we live in it's easy to forget that many rural areas of Africa are not even connected to the electricity grid. However, cheaper and more available solar panels are now bringing power to remote businesses like this barber shop in Malawi. Our Energy for Development research group designs business models for innovative uses of energy, stimulating local economies and reducing poverty.

© 2017 Aran Eales

WINNER

Health and Wellbeing



The brain in focus

The brain is an amazingly complex organ with billions of cells working together. Each neuron (the branching green cells) is connected to thousands of other neurons forming an organised network that they can communicate across. Our research involves growing these cells in a lab and focussing on how they change during injury and disease. By understanding these changes, we are better able to design new therapies to tackle these disorders.

© 2017 Graham Robertson



Small particles tackling big problems

Ensuring global access to safe, effective medicines depends on improving manufacturing methods while keeping the end product financially viable. Nanomedicines are extremely accurate tiny delivery systems that pinpoint the place and time to release drugs in the body, significantly improving medicine's effectiveness and reducing side effects. An interdisciplinary team of Strathclyde researchers is collaborating to improve nanomedicine production methods, creating better drugs while also working to reduce costs.



Inner sorrow, outer smile

Sometimes your face doesn't mirror what you're feeling inside. In Scotland, two people die by suicide every day, but what happens to those left behind? Our research asks whether adolescents whose loved ones die by suicide are more likely to self-harm or consider suicide, compared with those affected by other causes of death. Answering this question will improve our understanding of suicide bereavement, and help inform prevention strategies and policies.

© 2017 Laura Del Carpio

<https://www.wevideo.com/view/904499612>





Parasites: friend or foe?

Like it or not, parasites and humans have co-evolved over millennia. As we work to improve sanitation and eradicate parasites, should we first ask ourselves whether this living arrangement has actually protected our immune systems by preventing the rise of autoimmune diseases, like rheumatoid arthritis? Our research is investigating whether a protein produced by parasitic worms could be used to create new and better medicines to treat autoimmune diseases.

© 2017 James Doonan



A sticky end for parasites?

Parasitic worms have been the scourge of man and beast for centuries, sometimes with fatal consequences. With their growing resistance to drugs, could another creepy-crawly provide a solution? Bees produce a glue substance – propolis – for sealing gaps in the hive; our initial research indicates its ingredients could be key in the fight against parasitic worms, adding further weight to the bees’ eco-superhero status.

© 2017 Pilaslak Akrachalanont



Engagement in the digital age

Organisations are increasingly looking for ways to keep their employees engaged at work. Whilst the abundance of communication technologies has improved our ability to work on the move, it has also created more opportunities for distraction. Our research is exploring how communication technologies are blurring the lines between work and personal life, and exploring ways to keep the workforce engaged in today's digital age.

© 2017 Mohammad Shafqat

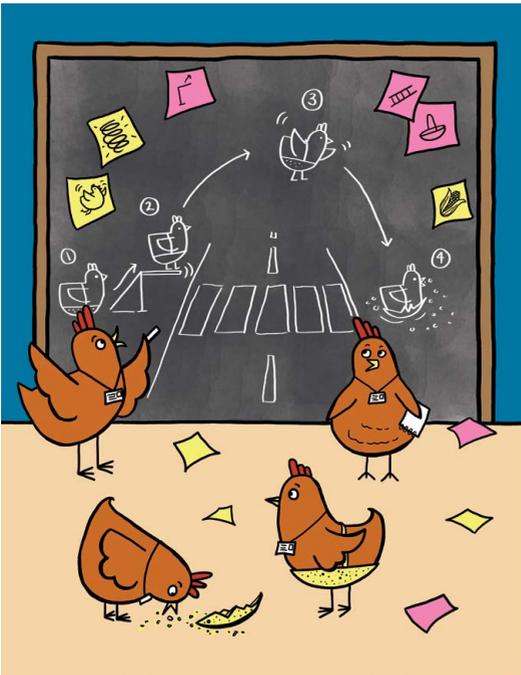


Bon Appetit!

In Malawi, 99% of the rural population uses open firewood cook stoves, emitting high levels of black carbon, fine particles and other air pollutants. Prolonged exposure to pollutants is associated with high risks of cardiovascular diseases and respiratory illnesses. The case (pictured left) contains portable air quality monitoring equipment which enables our researchers to measure the amount of air pollutants, and inform the development of interventions to improve air quality.

© 2017 Fiona Sutherland

Innovation and Entrepreneurship



Innovation through humour

What's the best way for a chicken to cross the road? An innovative solution is like a funny joke - surprising and satisfying. Comedians are highly innovative individuals, constantly using their creativity to improvise and find new ways to entertain an audience. Our research takes techniques used by comedians and applies them to a new approach for product design teams to generate ideas, providing novel solutions to complex design problems.

© 2017 Gillian Hatcher

<https://www.wevideo.com/view/904502668>





Narratives from Egyptian slums

“I need this project to keep going” – Um Mehareel. What will truly empower the marginalized women of Egypt’s rural and informal settlements to support themselves and their families? This research gathers the stories of women working in informal settlements around Cairo, enabling their voices to be heard in discussions on future policy and on focussing aid efforts to best help them transform their families’ future through entrepreneurial activities.

© 2017 Christine Habib



More than just a garden

At Mfera Secondary School (Malawi), research in sustainable living practices has developed a flourishing garden from the dust. Employing water resource management and crop diversification principles, the garden has over 30 food and medicinal plants. It feeds the students, improving their nutrition, but also teaches them entrepreneurship, providing surplus that can be sold. These life-transforming practices are being adopted further afield, creating a lasting impact on Malawi's poorest communities.

© 2017 Tracy Morse



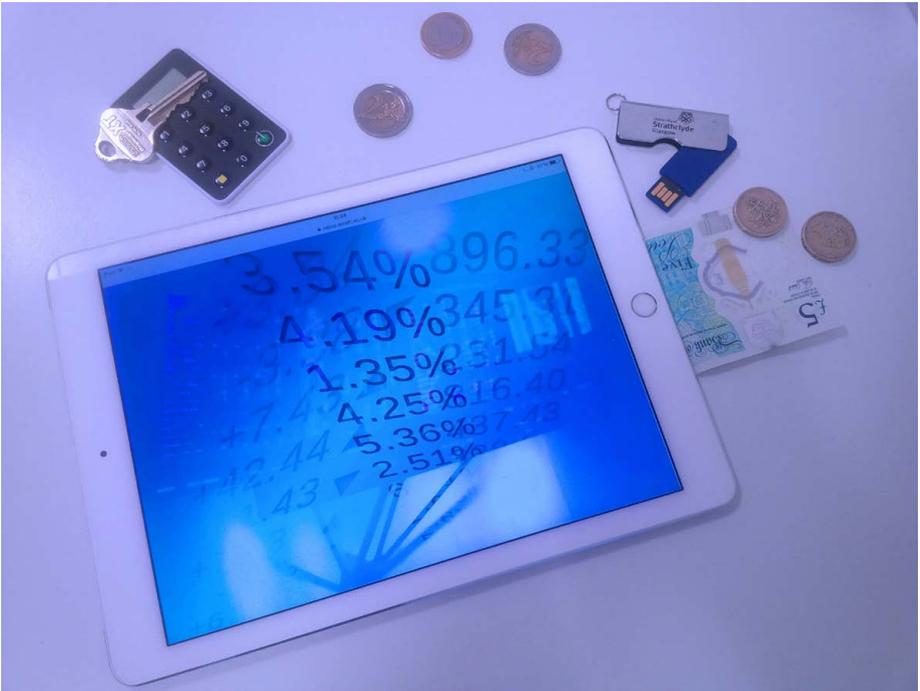
WINNER



Collaborating beyond the classroom

Collaborative project work is a key part of the learning process for engineering design students but could the use of online social network sites create more opportunities? Our research is investigating the increasing prevalence of social media in aiding students' research, discussions and informal decision-making. By incorporating the use of these platforms at university, we can better prepare students for industry, by making them better communicators and collaborators.

© 2017 Ross Brisco



Transforming finance with Fintech

At one time it took days to send money from Glasgow to London. Today huge sums travel thousands of miles in less than a second. In this era of digital finance, Fintech (financial technological innovation) is transforming the world's financial ecosystem and how we interact with money. Strathclyde's Centre for Financial Regulation and Innovation (CeFRI) is working to apply Fintech to make banking faster, cheaper and more secure for everyone.

© 2017 Daniel Broby

<https://www.wevideo.com/view/905093640>



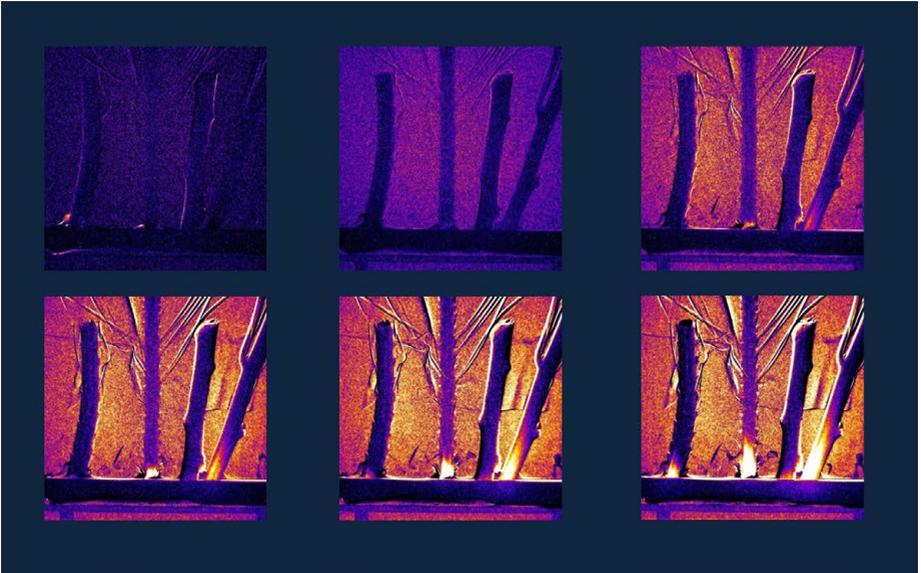
Measurement Science and Enabling Technologies



Views inside a particle

Could you cope without morning coffee, or medicine? We take powdered products like coffee and certain medicines for granted, but if they're not produced properly they can't perform effectively. At Strathclyde we're working on improving the process of spray drying, which produces powder particles. By studying the properties of those particles which work well, we can improve the process that creates them, to increase the effectiveness of the final product.

© 2017 Frederik Doerr

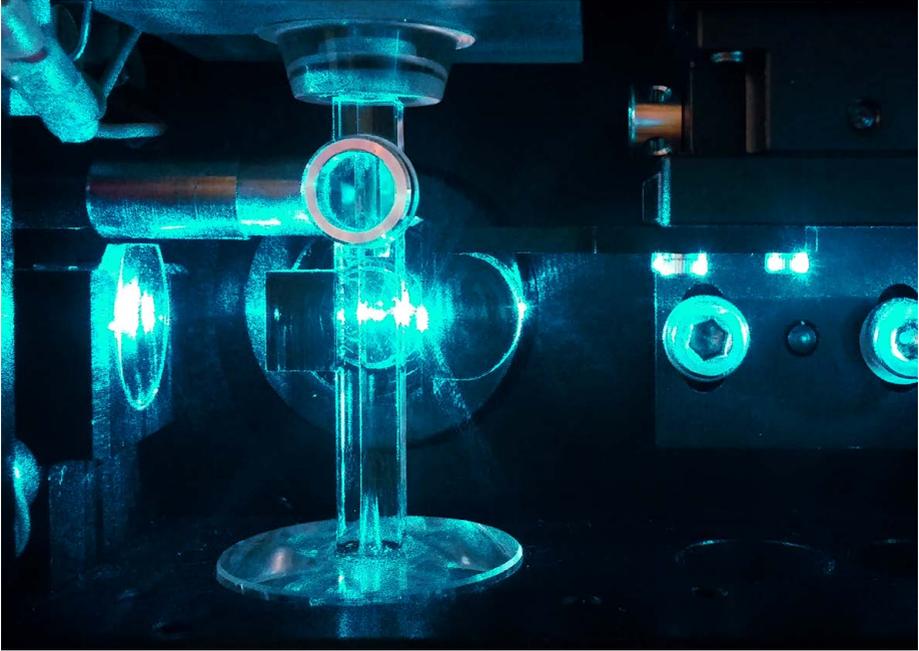


Hidden water paths of plants

Soil erosion and landslides can cause serious damage and endanger lives. Our research is investigating ways of engineering certain plants to effectively stabilise slopes in a low carbon, sustainable way. This image – created using a neutron beam - reveals vital information about water uptake and its progression through plant branches, helping us to understand the interactions between soil and vegetation, which is the first step to achieving this goal.

© 2017 Roberta Dainese

WINNER



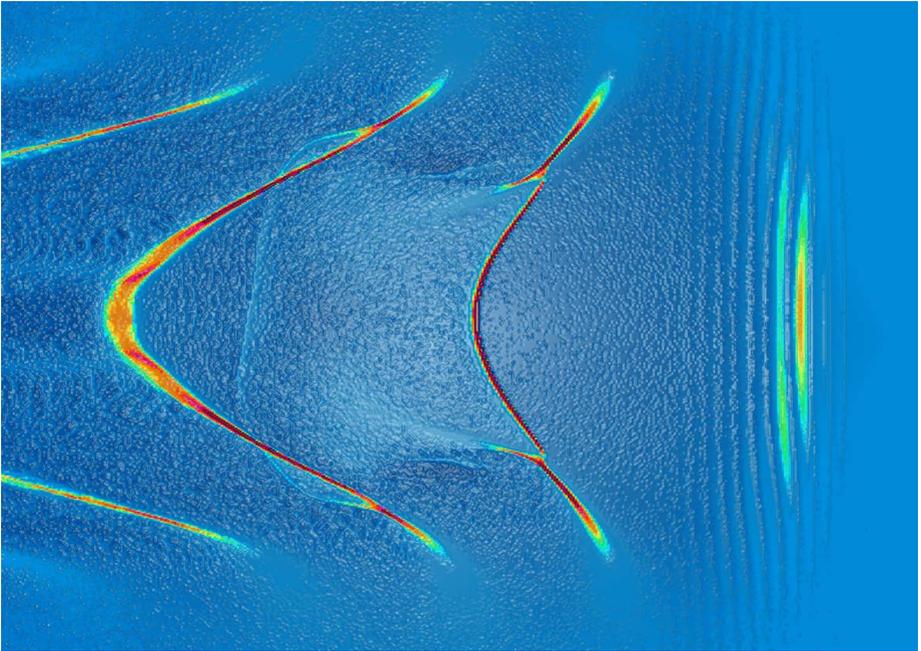
A light shines through

The way that water interacts with light can reveal much about what is living under the surface of our lakes and oceans. Here we see suspended mineral and organic particles being passed in single file through a focused beam of laser light, intercepting and scattering its photons. Studying this process can provide us with information that offers the chance of early detection of serious environmental threats like toxic algae blooms.

© 2017 Jacopo Agagliate

<https://www.wevideo.com/view/904505136>





Subatomic surfers

Science has made great advances thanks to particle accelerators but these machines are bulky and uneconomical to run. Our research is exploring the possibility of accelerating electrons, like surfers, with waves of plasma. Known as laser-plasma acceleration, this process (shown here) could enable us to drastically reduce the size of these machines, making cancer therapies, industrial processes and advances in research more accessible and cost-effective.

© 2017 Maria Weikum

<https://www.wevideo.com/view/904825960>



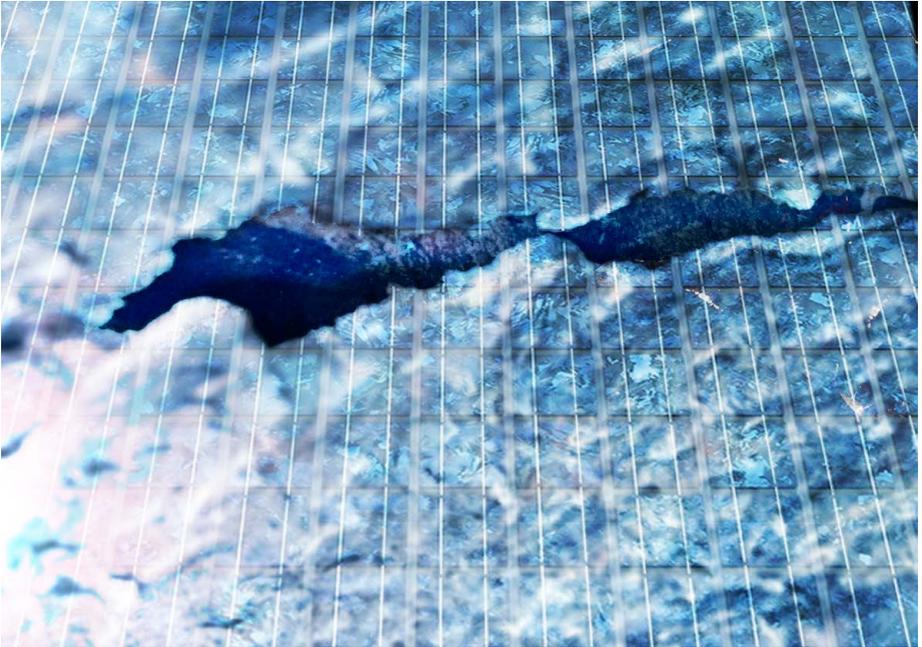


What lies beneath?

Damaged concrete coastal walls can be dangerous but surface damage is not an accurate indicator of the actual damage below. Our research uses Non-invasive Ground Penetrating Radar (GPR) that enables us to capture images of structural damage deep within a pier's damaged zones – like X-ray for concrete! Assessing structures in this way could enable repairs to be carried out before they become too costly and, potentially save lives.

© 2017 Cedric Sachet

Ocean, Air and Space



Dead in orbit

What if this satellite could repair itself, not using human hands, but with information already programmed into it? It sounds like science fiction, but Strathclyde is already working to realise this concept, and the potential benefit is staggering. Today, damage like this could end a space mission, costing millions in lost investment. But in future, satellites made of so-called 'programmable matter' could simply self-heal, then return to business as usual.

© 2017 Peter McGinty

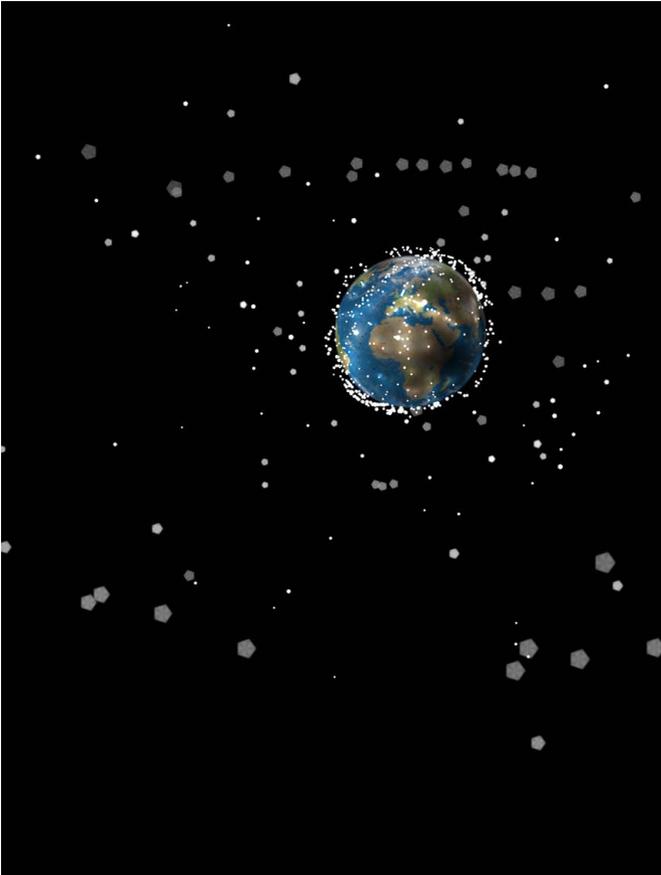


Monitoring under the watchful saint

A mural of St Mungo watches over one of Glasgow's many Air Pollution Monitoring Stations. When Nitrogen Dioxide (an urban pollutant) is exposed to a chemical fabric within the tubes, it forms crystals which are analysed to measure pollution levels. Our research trials a new type of tube which may improve readings by preventing strong winds from agitating the crystals, while maintaining the tubes' ability to trap pollutants successfully.

© 2017 Samuel Grainger





Pollution beyond our planet

This image shows man-made space debris, ranging in size from a paint fleck to a double-decker bus, which accumulated in a single year. Travelling faster than a bullet, this debris can potentially take down our communications and Global Positioning System (GPS), and even prevent manned space flight. Our research aims to predict how space debris moves over time, allowing us to develop a clean-up strategy to tackle this global problem.

© 2017 Stuart Grey

<https://www.wevideo.com/view/904526693>





Burning to reduce fuel burn

Composites (consisting of two or more materials, e.g. carbon fibre and plastic) have revolutionised the aerospace industry. However these lighter, stronger materials are more susceptible to heat damage than traditional metals. With increasing use of electricity on aircraft, the integration of composites with the electrical system is important. At Strathclyde, we're capturing information on the impact of sustained electrical currents on composite materials, so that we can optimise system design.

© 2017 Catherine Jones



Destruction disruption

The growing risk of terrorism attacks in places like airports and train stations demands new safety measures in structural design. This image shows a computer simulation of dust particle dispersion following an explosion. Discovering how gases and dispersed particles behave when subjected to external forces is crucial to developing new safety requirements. We hope the dispersal shape (a four-leaf clover) will prove a good omen for our challenging research.

© 2017 Marcello Lappa

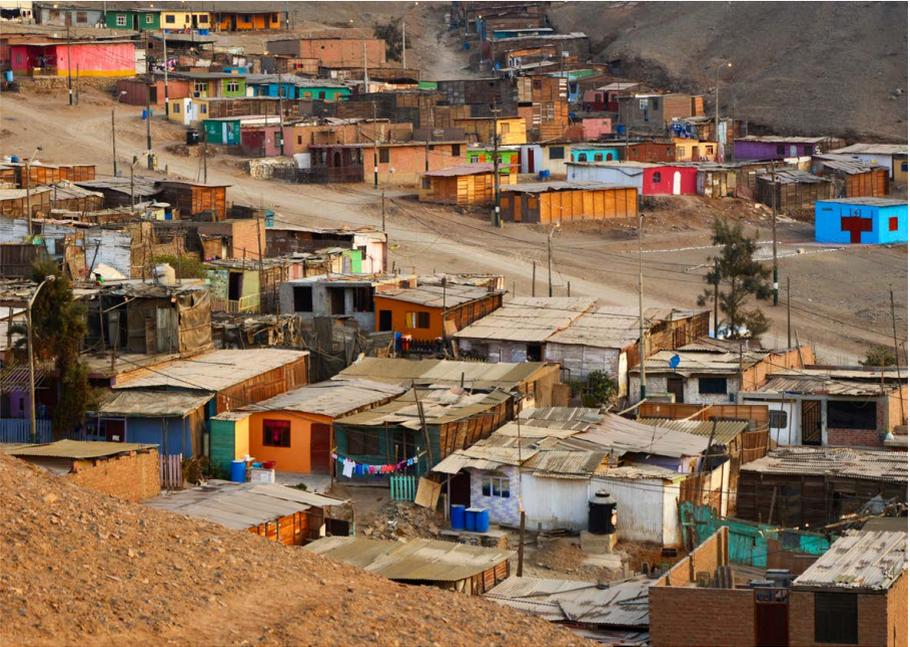


Take a deep breath?

These tubes are called diffusion samplers. Deployed at different sites throughout Glasgow, they help scientists measure the amount of nitrogen dioxide, and other health-damaging pollutants, present in the air. In this particular experiment, researchers are investigating how the weather affects the accuracy of the equipment in measuring air pollution.

© 2017 Fiona Sutherland

Society and Policy



Venice or Lima?

Would you consider Venice to be a slum? Of course not, but slums actually follow the same patterns of development as beautiful historic cities around the world; rather than being random, there is a definite relationship between building size, plot and street. By studying their structure, we can develop more culturally responsive planning strategies and ultimately improve the living conditions of many, hopefully eradicating slums altogether.

© 2017 Maddalena Iovene

**HIGHLY
COMMEDED**



Breaking barriers to information access

What are the barriers that prevent children from accessing and sharing information, and how might this impact on their adult lives? Our research considers whether childhood interventions could mean that adults have vital access to the information they need. Here, children aged 6-8 are asked to help Jack the Puppet learn about dinosaurs. The children then identify to the researcher what prevents them finding out what they want to know.

© 2017 Frances Breslin Davda

<https://www.wevideo.com/view/904512760>



**WINNER**

Social media and you

How does Facebook make you feel about yourself? Our research shows that the more time young women spend on Facebook, the more they compare themselves to others and feel negatively about their own bodies; in some cases it can also lead to dysfunctional eating behaviours. By alerting these young women to the subtle ways in which social media affects them, we can hopefully protect them from its negative effects.

© 2017 Deyan Stoev





Windows to knowledge

Two windows: one framing the Scottish landscape where Glenbuchat Castle is a historical landmark, the other framing the stone masonry pattern used to build the monument wall. Our research focuses on analysing the stone masonry types and techniques used to build 17th-18th century architecture in Scotland. Understanding how these monuments were built is essential to stop further decay and preserve the value and authenticity of such unique heritage.

© 2017 Clara Gonzalez Manich



Equity, natural resources, the law

A mining company planted a sign in the middle of territories traditionally used by indigenous peoples in Argentina, indicating its commitment to responsibility. But according to whose views? And to which standards? My research aims to clarify to what extent international law on environmental sustainability and on human rights can help clarify the respective responsibilities of central and local governments, and of private companies interested in natural resource exploitation.

© 2017 Elisa Morgera



Let me think critically

The world currently faces great uncertainty. Resolving our issues requires, perhaps above all, an engaged and thoughtful society which can objectively analyse and evaluate conflict and crises. But are we raising our children to be critical thinkers? My research seeks to discover how teachers can help young children to develop critical thinking skills, making them better equipped to meet and resolve the present and future problems of society.

© 2017 Loreain Martinez Lejarreta



Rethinking volunteer tourism

Volunteer tourism is rife with contradiction – the need for help is clear, but is the tourism industry merely maintaining the problem? Our research explores how a lack of evaluation of self-funded, agency-run international volunteering programmes could be preventing them from bringing lasting change to the communities they target. A balance must be found between what volunteers can deliver, the needs of impoverished children and those of the wider community.

© 2017 Konstantinos Tomazos

Researcher Development Programme (RDP)

The University of Strathclyde's Researcher Development Programme (RDP) is delivered by Faculties, Professional Services and external bodies to offer research students and early career academics a range of opportunities to continue their personal, professional and career management skills development.

Aligned to the national agenda supported by Research Councils UK (RCUK) and Vitae, courses, resources and events aim to help researchers enhance their transferable skills and competencies, and widen their scope for future employability both inside and outside academia.

Please visit www.strath.ac.uk/rdp to find out more.

Impact Acceleration Account (IAA)

The University of Strathclyde's EPSRC Impact Acceleration Account (IAA) will accelerate the impact from Strathclyde's Engineering and Physical Sciences research, with the aim of improving society and the economy.

The Engineering and Physical Sciences Research Council (EPSRC) awarded the University of Strathclyde £3.9M to support the development of impact from our EPSRC-funded research portfolio. The Strathclyde IAA opened on 1st October 2012, and will run until 31st March 2020.

Further information on the EPSRC IAA can be found at:
<https://www.strath.ac.uk/rkes/iaa/>

Engage with Strathclyde, 2nd – 5th May 2017

The University of Strathclyde's flagship events programme, Engage with Strathclyde, is transforming the way the University reaches out to public, private and third sector organisations. This week-long series of events attracts almost 2,000 delegates from over 600 organisations and this year will host over 50 different events showcasing the latest research from all Faculties of the University. The Images of Research exhibition takes place in the Technology and Innovation Centre, the central hub for events during the week. This is an excellent opportunity for delegates to see another interpretation of some of the research that takes place at the University.

<http://www.strath.ac.uk/workwithus/engage/>

Entry Information

Advanced Manufacturing and Materials index

Colours of drug polymorphism

Submitter: Monika Warzecha
Department: EPSRC Centre for Innovative Manufacturing in Continuous Manufacturing and Crystallisation

Rust forensics

Submitter: Athanasios Anagnostakis
Department: Mechanical and Aerospace Engineering

Beyond smart factories

Submitter: Abigail Hird
Department: Design, Manufacture and Engineering Management
Collaborators: Ross Brisco (photographer)

Advanced materials and smart coatings

Submitter: Rafee Abdulmajeed Rafee Ahamed
Department: Mechanical and Aerospace Engineering
Collaborators: Prof. Margaret M. Stack, Cameron Johnstone, John Cullen

'Free-from' matters

Submitter: Francesca Laitano
Department: Chemical and Process Engineering
Collaborators: Dr Ashleigh Fletcher (supervisor), Gerard Johnston (technical support)

Energy index

Where will your car charge?

Submitter: Kyle Smith
Department: Institute for Energy and Environment
Collaborators: Dr Stuart Galloway

The turbulent life of turbines

Submitter: Rohaida Hussain
Department: Electronic and Electrical Engineering

Deforestation in the kitchen

Submitter: Aran Eales
Department: Electronic and Electrical Engineering

Off-grid

Submitter: Scott Strachan
Department: Electronic and Electrical Engineering
Collaborators: Puran Rakhra, Michael Dolan

New heights for wind power

Submitter: Oliver Tulloch
Department: Electronic and Electrical Engineering
Collaborators: Roderick Read (photographer)

Powering business, fuelling change

Submitter: Aran Eales
Department: Electronic and Electrical Engineering

Health and Wellbeing index

The brain in focus

Submitter: Graham Robertson
Department: Electronic and Electrical Engineering
Collaborators: Christopher MacKerron (cell provision)

Small particles tackling big problems

Submitter: Yvonne Perrie
Department: Strathclyde Institute for Pharmacy and Biomedical Sciences
Collaborators: Neil Forbes, Carla Roces, Gustavo Lou, Maryam Hussain, Giulia Anderluzzi

Inner sorrow, outer smile

Submitter: Laura Del Carpio
Department: Psychology

Parasites: friend or foe?

Submitter: James Doonan
Department: Strathclyde Institute for Pharmacy and Biomedical Sciences
Collaborators: Felicity Lumb (co-creator of content)

A sticky end for parasites?

Submitter: Pilaslak Akrachalanont
Department: Strathclyde Institute of Pharmacy and Biomedical Science
Collaborators: Dr Catherine Lawrence, Dr Katherine Carter

Engagement in the digital age

Submitter: Mohammad Shafqat
Department: Human Resource Management, Strathclyde Business School

Bon Appetit!

Submitter: Tara Beattie
Department: Civil and Environmental Engineering
Collaborators: Fiona Sutherland (photographer and completed research), Dr Iain Beverland

Innovation and Entrepreneurship index

Innovation through humour

Submitter: Gillian Hatcher
Department: Design, Manufacture and Engineering Management

Narratives from Egyptian slums

Submitter: Christine Hubib
 Department: Hunter Centre for Entrepreneurship

More than just a garden

Submitter: Tracy Morse
 Department: Civil and Environmental Engineering
 Collaborators: Dr Tara Beattie

Collaborating beyond the classroom

Submitter: Ross Brisco
 Department: Design, Manufacture and Engineering Management
 Collaborators: Dr Ian Whitfield, Dr Hilary Grierson

Transforming finance with Fintech

Submitter: Daniel Broby
 Department: Department of Accounting and Finance, Strathclyde Business School

Measurement Science and Enabling Technologies index

Views inside a particle

Submitter: Frederik Doerr
 Department: EPSRC Centre for Innovative Manufacturing in Continuous Manufacturing and Crystallisation
 Collaborators: Dr Iain Oswald, Prof. Alastair Florence

Hidden water paths of plants

Submitter: Roberta Dainese
 Department: Civil and Environmental Engineering
 Collaborators: Alessandro Tengattini, Institute Laue Langevin/Grenoble University (image processing)

A light shines through

Submitter: Jacopo Agagliate
 Department: Marine Optics, Physics

Subatomic surfers

Submitter: Maria Weikum
 Department: Physics
 Collaborators: Prof. Zheng-Ming Sheng, Michael Chrubasik

What lies beneath?

Submitter: Cedric Sachet
 Department: Civil and Environmental Engineering
 Collaborators: Dr Philippe Sentenac

Ocean, Air and Space index

Dead in orbit

Submitter: Bryan Tester
 Department: Mechanical and Aerospace Engineering (Advanced Space Concepts Lab)
 Collaborators: Cal Lomax (artist)

Monitoring under the watchful saint

Submitter: Samuel Grainger
 Department: Civil and Environmental Engineering
 Collaborators: Sam Bates "Smug" (Mural Painter), Nicola Massey and Fiona Sutherland (Co-workers)

Pollution beyond our planet

Submitter: Stuart Grey
 Department: Mechanical and Aerospace Engineering

Burning to reduce fuel burn

Submitter: Catherine Jones
 Department: Electronic and Electrical Engineering
 Collaborators: Chris Banks (photo editing assistance)

Destruction disruption

Submitter: Marcello Lappa
 Department: Mechanical and Aerospace Engineering

Take a deep breath?

Submitter: Fiona Sutherland
 Department: Civil and Environmental Engineering

Society and Policy index

Venice or Lima?

Submitter: Maddalena Iovene
 Department: Architecture

Breaking barriers to information access

Submitter: Frances Breslin Davda
 Department: Computer and Information Sciences

Social media and you

Submitter: Petya Eckler
 Department: School of Humanities
 Collaborators: Deyan Stoev (photographer)

Windows to knowledge

Submitter: Clara Gonzalez Manich
 Department: Architecture

Equity, natural resources, the law

Submitter: Elisa Morgera
 Department: Strathclyde Centre for Environmental Law and Governance, Strathclyde Law School

Let me think critically

Submitter: Loreain Martinez Lejarreta
 Department: Education
 Collaborators: Aranzazu Temprano Millan (digital design)

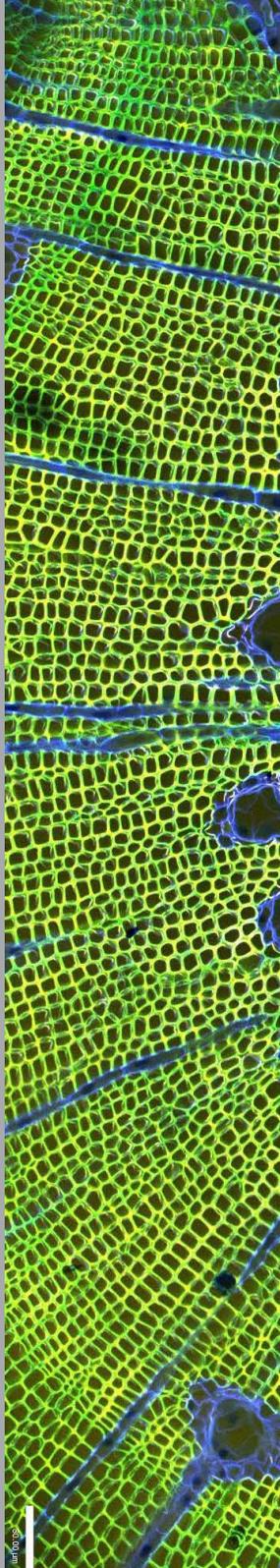
Rethinking volunteer tourism

Submitter: Konstantinos Tomazos
 Department: Strategy and Organization, Strathclyde Business School

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