President's Address 2021

Universities at a crossroads
In this extraordinary time after enduring such a profoundly sad and painful year, it is more important than ever to celebrate the great accomplishments that make us all proud of our community. Six years ago we started the tradition of using the President’s Address as an opportunity to gather to pay tribute to our staff, students and alumni who have received external awards over the past year. While we cannot gather in person, we can still be buoyed by the wonderful people and the accolades they have so greatly deserved.

Our colleagues inspire us with their devotion to excellence, their dedication to helping others and their support of our community. Their efforts evoke pride by their families, their friends, their colleagues and to the College.

You will see brief descriptions of their achievements in this programme. As you read it, I think that you will be as impressed as I am by the many ways they have used their time and talents for the benefit of society.

Please join me in congratulating these brilliant colleagues. Their actions embody the excellence, values and societal impact Imperial College London is known for. We look forward to the opportunity to celebrate in person in the future.

I also thank all members of the Imperial community who contribute in numerous ways in their professional and personal lives to make the world a better place.
I reflected on the practice of giving thanks before a meal. Perhaps now, for some, God is in the Cloud awaiting our adoring photos of what we eat!

I found myself amused by this idea until I realised that if I went on a run without my phone to "log" my workout, I felt it didn’t count. Clearly my coach in the Cloud needed to see evidence of my movement for it to be real. Maybe I too was reliant on approbation from a phone.

During the past year we have been blessed, and cursed, by spending vast amounts of time online, working, connecting, documenting. Our screen time has increased dramatically. We know this from those unwelcome reports of the hours we have stared at our computers, phones and tablets.

We’ve connected with friends and colleagues far and wide. We’ve Zoomed, FaceTimed, and reached into homes of family members we long to see, friends we have wanted to get back in touch with, colleagues who are hard to see in person at any time but are easy to find pinned to their computer.

Our reliance on technology has been growing for years, but it has accelerated during the pandemic. Things will never be the same again.

It has been a profoundly sad, exhausting and trying year. Our hearts go out to those who have suffered the tragic effects of the pandemic. Both physically and mentally, COVID-19 has taken its toll on all of us.

Yet amidst the loss and sadness there are also things that lifted our spirits and for which we are thankful. The incredible efforts of people across the country and throughout the world inspire our gratitude. The response to the pandemic by the scientific community, including our own, alongside the tireless efforts by the NHS deserve repeated recognition.

It has been an unprecedented year with tremendous innovation. So many of you helped others to find new ways to learn, new ways to teach, new ways to pursue research, new ways to care for our students, and new ways to keep the university running. And it is running well. You have written more papers and more proposals than in years past. You have gotten a lot done. You’ve worked from home and at the front lines.

We can be proud of the accomplishments we made in the face of daunting challenges.

Today, as is our tradition, we celebrate the external accolades earned by our colleagues. There is much to celebrate despite the many hardships of the past year.
Universities are at a crossroads

The history of universities is long and rich. Most were founded to "create a community of scholars" who could share their insights and discoveries, and to "create an educated workforce or society". In recent times these founding principles have been influenced by two accelerating driving forces: enhanced technological capability and vastly easier international mobility. New technologies affect just about everything we do today, and they have enhanced scientific discovery. Just a few decades ago, we could not have imagined our ability to sequence mutations in a virus with such speed, to see the Higgs-Boson, to visualise single molecules, or to drive around on the surface of Mars. Science has been hugely accelerated by new computing, imaging and sequencing abilities. And the acceleration continues with the further expansion of data storage and computational power. The dramatic increase in international mobility has been the other dominant driving force influencing universities.

The marketplace of ideas and learning creates opportunities for people from around the world. The value-added of English language education has propelled the US and the UK to the forefront of global higher education. Students from around the world aspire to study here. The value-added of English language education has propelled the US and the UK to the forefront of global higher education.

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This has been an extraordinary period of rapid change for universities like ours and there are many competitive challenges ahead. Here are three:

1. We have educated the next generation of scholars who are able to teach in new or expanded universities in their home countries, in English if desired.
2. Technology can bring learning to where you are; the need to spend the time in a residential university may become less compelling than in the past.
3. We are in a period of competing national interests that favours nationalism over globalism.

We know that we cannot simply return to the way we were before. I firmly believe that there will still be a strong need for the very best education with the top scholars in the world. We can prevail if we can change.

Universities are at a crossroads and only by remaining open to new people, new technological innovations and new ideas will we succeed.

What is our opportunity at Imperial?

We have a lot going for us at Imperial and we can build upon our strengths:

- We have top talent in science, engineering, medicine and business
- We know how to work together across these disciplines
- We pursue world leading discovery research
- We collaborate better than most
- We have exercised our use of technology in education
- We have people in our community eager to think broadly
- We have opportunities in our estate and our spaces to do things differently
- We must build upon these strengths by having audacious goals and facing the realities of our strengths and weaknesses – what the organizational guru Jim Collins calls ‘facing the brutal facts’.

Here are four brutal facts and audacious goals and investments to help us face them:

1. Our talented community lacks diversity

Like other universities, we are missing contributions from large segments of the population. We must diversify our community, at all levels, from students to Council members. We must be more ethnically diverse, gender balanced, and internationally diverse. Increasing diversity will strengthen and enrich our community. It will make us more competitive.

We must start with our students. I am proud of our work to improve opportunities for students who have the intellectual ability but lack the economic capacity, confidence, or support systems they need to attend university.

I am announcing a £10 million challenge fund to ignite support for scholarships and fellowships over the next five years. Half of this, £5 million, will support prestigious scholarships and fellowships for talented underrepresented students.

This will include black students, other underrepresented students and students whose socioeconomic backgrounds are barriers to university attendance.

We know that by providing this support, supplemented by philanthropic donations, we can improve our recruitment and retention of students we historically have not attracted.

Many of our friends and alumni are eager to help. I invite them to use this moment to join with us to make a difference. We have seen the power of their support. One example is the generous donation from the Olanrewaju brothers to support scholarships for black undergraduate students of exceptional academic merit in Engineering and a gift to begin establishing a new endowed scholarship.

The other £5 million of the challenge fund will provide matching funds to support scholarships and fellowships for international students. We have many generous alumni and friends around the world who wish to help students from their home country to attend Imperial. Often, they can support part of the cost of an international fellowship or scholarship. This matching funding will allow us to accept these donations and support talented students from around the world.

2. Technology has changed education; we need to change too.

I may have found my best French teacher ever. It's a machine-learning algorithm that sees where my weaknesses and strengths are and dishes up new lessons every day. I loved my French teachers at Princeton, but now I’m learning a lot from a machine.

While we have reaped some of the benefits of the data revolution in our research, we are just beginning to realise its effects on our teaching. The pandemic, and our rapid move to remote, online and "multi-mode" education have given us a taste of our ability to enrich the educational experience for our students.

We already have wonderful examples of generous donors making a difference around the world. Scholarships from the Amref & Bseisu Foundation provide pivotal support to students from the Levant and Malaysia, and the Lee family has supported vital scholarships for students across the College.

We are also privileged to be among the universities hosting the Beacon Scholarship, a leadership development programme that nurtures ‘change-makers’ among young, gifted students with leadership potential from Kenya, Uganda, Tanzania and Zambia.

The government clearly has a role to play. Our newly awarded British Council Scholarships for Women in STEM are bringing women from South America into some of our MRes and MSc programmes, and we welcome many outstanding Chevening and Commonwealth scholars every year.

We are grateful for this support and we call upon the government to expand such efforts to help us diversify our community.

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We must seize the opportunity to build upon what we have done by integrating the innovations we have made with the best of our traditional modes of education. We must remain alert to opportunities for further innovation. The best and brightest students will not accept an education fashioned around dull lectures in a crowded auditorium.

Education is a two-way street; students learn from scholars and from one another while scholars learn from their students. We need to recapture this spirit while also seizing the opportunities that technology brings. I was struck by conversations I have had with colleagues teaching the “conversion masters” for AI and Machine Learning. They talk about how students come from all backgrounds – even a barrister. They come in wanting to learn how to use AI and Machine Learning in their field. They have the problems to teach our students how to learn, and to instil in them a love of learning. Now is the time to begin thinking clearly about our role in the education of people at all ages, on our campuses and throughout the world. This means defining our role in providing educational opportunities to adults, young people and the broader public. There is more to do. The increased complexity of the societal issues we face makes an educated citizenry more important than ever.

Universities easily get mired in pedagogical treacle unable to agree to change any course, setting up committees, launching reviews to ratify the status quo. One thing that the pandemic taught us is that when we have to, we can change. We can and must seize the opportunity to be different.

3. We will need to use space differently

Technology is an increasingly important asset in education. Does that mean that the residential education with top scholars is outdated? I don’t think so. I believe that the time and distance between our newest scientific discoveries and the classroom discussions is important. There is much that will be changing in who we teach and how we teach. Events on a virtual platform have broadened our audience. We can share inaugural lectures, invited speeches, and Machine Learning in their field. They have the problems.

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In my 2019 Address I said: “Collaboration is important not only across disciplines, but also across cultures. It brings new insights, leads to new approaches and to new discoveries.”

The pandemic has shown us how we can collaborate even more effectively than ever. This is very true of research and we only need look at some of the great accomplishments of the past year.

The rapid pivot to COVID-19 research brought out the best in local and international collaboration. A critically important collaboration, ISARIC4C (Coronavirus Clinical Characterisation Consortium) brought scientists from around the UK together to immediately link clinical data from across the NHS to answer urgent questions.

Similarly, a group of Imperial academics from Life Sciences, Medicine and Bioengineering are building upon years of collaboration to develop the Digital Diagnostics for Africa Network. This network brings together diverse scientists with diagnostic manufacturing companies and organisations working in African countries. Collaborating with academics from the University of Ghana, the network is putting new disease control tools and strategies into practice.

The Department of Materials has recently begun a collaboration with the Max Planck Institute in Dusseldorf, with a £10 million grant to develop a world-first microscopy suite aimed at unravelling questions about the atomic nature of materials. This project includes joint appointment of staff between our institutions, focused on materials for the energy transition.

And which things should no longer be done?

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This year we celebrated the tenth anniversary of our landmark collaboration with NTU to create LKCMedicine. We have built a world-leading modern technology-based medical education and talented doctors are coming from the programme.

We are also working with international partners to find new and innovative ways to teach. In one example, a group of Dyson School of Design Engineering students and TU Munich students use Augmented Reality headsets and Gravity Sketch software to remotely collaborate on design engineering innovation projects.

Our School of Public Health developed an online module with the African Institute of Mathematical Sciences, Cameroon, as part of their MSc in Mathematical Sciences. The partnership with AIMS attracts students with new ideas, who challenge assumptions and inject life into mathematics. Imperial academics collaborate with partners there on how to model challenges that African countries are facing.

These collaborations, and many more, make it clear that our advocacy for international mobility is more important than ever. The free flow of people and ideas is critical to fulfilling our mission of research, education and innovation in the benefit of society. We must not let rising geopolitical challenges and seeds of separatism harm these important relationships.

In closing

We have just been through a shattering experience with unprecedented loss of life, deep psychological trauma and uncertainty looming ahead. We are all exhausted from work, worry, lack of rest and lack of human interaction. These are very challenging and stressful times.

They are also exciting times. Huge changes were thrust upon us and these experiences can serve as a catalyst for meaningful long-term change.

Universities are at a crossroads.

As we define our audacious goals and face our brutal facts, as we diversify our community, as we sustain our collaborations, as we continue to innovate our education, and as we explore new ways of working, I know that we will be leaders defining the way forward.

Thank you

Professor Alice P. Gast
2 June 2021
External awards and accolades

Dr Francesco Aprile
Future Leaders Fellow, Department of Chemistry
Awarded a Future Leaders Fellowship from UK Research and Innovation

Dr David Ayoso
Royal Society University Research Fellow, Department of Physics
Awarded a Royal Society University Research Fellowship

Professor Barbara Bain
Professor of Diagnostic Haematology, Department of Immunology and Inflammation
AM for significant services to medical education, particularly haematology

Dr Jo Barstow
Lecturer in Statistics, Department of Mathematics
Awarded an Ernest Rutherford Fellowship

Dr Amir Afshar
Visiting Researcher, Department of Chemistry
Joint winner of the 2020 Venture Catalyst Challenge for their initiative The Shellworks, which turns waste crustacean shells into biodegradable, compostable products which can be used as an alternative to plastic

Dr Martin Archer
Stephen Hawking Fellow, Department of Physics
Awarded the Stephen Hawking Fellowship from UK Research and Innovation

Professor Jane Apperley
Chair of the Centre of Haematology, Department of Immunology and Inflammation
Professor of Diagnostic Haematology, Department of Immunology and Inflammation
AM for significant services to medical education, particularly haematology

Sheridan Ash
MBA 2002
MBE for services to women and girls through technology

Dr Amira Barrington
Research Fellow, Department of Economics and Public Policy and Centre for Health Economics
Awarded a British Academy grant and a UK Research and Innovation grant to explore the long-term effects of investment in early childhood education in Ghana

Dr Elisabetta Bartesani
Research Fellow, Department of Economics and Public Policy and Centre for Health Economics
Policy Innovation

Professor Peter Barnes
Senior Research Investigator, National Heart and Lung Institute
Elected an honorary fellow of the British Pharmacological Society and awarded the Truебов Medal for respiratory health

Dr Jo Barstow
Awarded an Ernest Rutherford fellowship and will be joining Imperial to study exoplanets

Dr Heather Batter
Lecturer in Statistics, Department of Mathematics
Awarded an Early Career Fellowship from the Engineering and Physical Sciences Research Council

Kevin John Baughan
MBA 2005
MBE for services to innovation and skills development

Louise Olivia Beaton
Wye College 1979
MBE for voluntary service to rural communities

Dr Mario Berta
Senior Lecturer, Department of Computing
Awarded a European Research Council Starting Grant

Brandon Blackwell
Taught Masters Student, Department of Computing
Part of the winning team on University Challenge 2020

Dr Anna Victoria Brown
PhD Environmental Biology 2001
MBE for services to forest pathology

Dr David Bombard
Royal Society University Research Fellow, Department of Chemistry
Awarded a Royal Society University Research Fellowship

Kevin John Baughan
MBA 2005
MBE for services to innovation and skills development

Louise Olivia Beaton
Wye College 1979
MBE for voluntary service to rural communities

Dr Mario Berta
Senior Lecturer, Department of Computing
Awarded a European Research Council Starting Grant

Richard Brooks
Research Postgraduate, Department of Mechanical Engineering
Part of the winning team on University Challenge 2020

Dr Anna Victoria Brown
PhD Environmental Biology 2001
MBE for services to forest pathology

Dr Gillian Rosemary Tilden Bullock
Botany and Plant Technology 1978, BSc 1967, DSc 1966
MBE for services to families in rural Kenya

Professor Andrew Bush
Professor of Paediatrics and Paediatric Respiratory Medicine; Director, Imperial Centre for Paediatrics and Child Health
National Heart and Lung Institute
Received the European Respiratory Society Congress Chair Award in recognition of his contribution to research and training in respiratory medicine

Professor James David Forbes Calder
Professor of Biomechanics, Department of Biomedical Engineering
RCUK for services to sport and exercise

Dr Ana Caraiani
Royal Society University Research Fellow (Reader), Department of Mathematics
Winner of a European Mathematical Society Prize

Dr Deesha Chadha
Senior Strategic Teaching Fellow, Department of Chemical Engineering
OBE for services to faith communities
**Dr Timothy Boon Leong Ho**  
PhD Investigative Science 2002  
MBE for services to the NHS during COVID-19

**Professor Stephen Towner-Holgate**  
Charity Cross Hospital Medical School 1977  
Knighted for services to Medical Research

**Mathew Holloway**  
MSc Dic Innovation Design Engineering 2008  
Winner of the 2020 Queen’s Award for Innovation for the Q-Bot

**Professor Oliver Howes**  
Visiting Professor, Institute of Clinical Sciences  
Elected a Fellow of the Academy of Medical Sciences

**Professor George Jackson**  
Professor of Chemical Physics,  
Department of Chemical Engineering  
Elected a Fellow of the Royal Society

**Isolde Jallerpe**  
Visiting Researcher, Department of Chemistry  
Joint winner of the 2020 Venture Catalyst Challenge for their initiative The Shellworks, which turns waste crustacean shells into biodegradable, compostable products which can be used as an alternative to plastic

**Swapnil Jagtap**  
Research Postgraduate, Department of Civil and Environmental Engineering  
Named one of Forbes’ 30 Under 30 in Europe for his work on reducing the carbon impact of aviation

**Professor Sebastian Johnston**  
Asthma UK Clinical Chair, National Heart and Lung Institute  
Winner of the European Respiratory Society’s Gold Medal in Asthma, elected as a Fellow of European Academy of Allergy & Clinical Immunology

**Edward Jones**  
Taught Postgraduate,  
Dyson School of Design Engineering  
joint winner of the 2020 Venture Catalyst Challenge for their initiative The Shellworks, which turns waste crustacean shells into biodegradable, compostable products which can be used as an alternative to plastic

**Chris Kagogratis**  
Undergraduate Student,  
Dyson School of Design Engineering  
Winner of the 2020 GSK UK Young Engineer of the Year

**Dr Matthew Jamie Knight**  
PG Cert Medicine 2016  
MBE for services to the NHS particularly during COVID-19

**Professor Sir Peter Knight**  
Senior Research Investigator,  
Department of Physics  
Awarded the Institution of Engineering and Technology Fellowship

**Thomas Komoly**  
MSc Mechanical Engineering 1965  
BEM for services to Holocaust education and awareness

**Dr Rodrigo Ledesma Amaro**  
Lecturer, Department of Bioengineering  
Awarded a European Research Council Starting Grant

**Dr David Lefevre**  
Director, EdTech Lab  
Winner of multiple team awards at the QS Romagna Education Conference, which recognised the EdTech Lab’s part in the FOME Alliance, their telegram and Global Online MBA

**Professor Martin Liebeck**  
Head of the Pure Mathematics Section,  
Department of Mathematics  
Awarded the London Mathematical Society’s Pilkis Prize

**Professor Nick Long**  
The Sir Edward Frankland BP Chair of Inorganic Chemistry,  
Department of Chemistry  
Awarded the Royal Society of Chemistry’s Frankland Award for outstanding synthetic inorganic and organometallic chemistry and subsequent applications in catalysis, functional materials and biomedical imaging

**Professor Sandro Macchietto**  
Professor of Process Systems Engineering,  
Department of Chemical Engineering  
Elected a Fellow of the Royal Academy of Engineering

**Professor Sally Margaret McGregor**  
St Mary’s Hospital Medical School 1967  
OBE for services to early childhood development in developing countries

**Conor McMeel**  
Research Postgraduate, Department of Computing  
Part of the winning team on University Challenge 2020

**Professor Graham Medley**  
PhD Epidemiology 1997  
OBE for his services to the COVID-19 response

**Professor Neena Modi**  
Professor of Medicinal Medicine,  
School of Public Health  
Elected a Fellow of the Academy of Medical Sciences; elected to Council at the Academy of Medical Sciences

**Dr Asher Mullokandov**  
Research Associate, Department of Mathematics  
Granted the Crick-Turing Biomedical Data Science Award

**Professor Kevin Murphy**  
Professor of Endocrinology and Metabolism,  
Department of Metabolism,  
Diet and Reproduction  
Awarded an Honorary Fellowship from the Royal College of Physicians

**Dr Mirabelle Muuls**  
Assistant Professor in Economics,  
Department of Economics and Public Policy  
Winner in the 2019 Finance for the Future Awards for the Centre for Climate Finance and Investment and its MSc Climate Change, Management & Finance programme

**Professor Stefan Maier**  
Lee-Cucis Chair in Experimental Physics,  
Department of Physics  
Awarded the American Chemical Society Nano Lectureship

**Dr Sarah Malik**  
Academic Visitor,  
Department of Physics  
Awarded the Royal Society University Research Fellowship ( renewal)

**Professor Omar Matar**  
Vice-Chem (Education), Faculty of Engineering,  
Department of Chemical Engineering  
Elected to the Fellowship of the Royal Academy of Engineering

**Professor Iain McClusche**  
Visiting Professor, Department of Chemistry  
Awarded the Royal Society of Chemistry’s Interdisciplinary Prize for advances in the design, synthesis and innovative application of functional materials in optics, electronics and energy, elected a Fellow of the Royal Society, awarded the 2020 Blaise Pascal Medal by the European Academy of Sciences

**Professor Ramana Nanda**  
Visiting Professor of Entrepreneurial Finance,  
Department of Finance  
Awarded a European Research Council Consolidator Grant worth €1.6 million to study the financing frictions facing ‘high potential’ entrepreneurs and small and medium sized enterprises (SMEs).

**Clare Joanna Threlfall Normand**  
MSc Environmental Technology 1994  
OBE for services to brain tumour charities

**Professor Laura Politis**  
Professor of Experimental Medicine,  
National Heart and Lung Institute  
Selected as Senior Investigator by the National Institute for Health Research

**Professor Dame Carol Propper**  
Chair in Economics, Department of Economics and Public Policy  
Awarded a damehood for her contribution to economics and public health

**Professor Simon James Trent Pollard**  
Chemistry 1997, PhD Civil Engineering 1990  
OBE for services to environmental risk management

**Professor Damiel Petitt**  
Reader in Materials Engineering,  
Department of Chemical Engineering  
Awarded the Royal Society of Chemistry’s Barrer Award for innovative work on porous nanomaterials for applications in the energy and sustainability sectors

**Dr Sarabjit Singh Purewal**  
PhD Investigative Science 1976  
OBE for services to health and safety and to cyber security

**Dr Sofia Qvarfort**  
Academic Visitor, Department of Physics  
Received a Doctoral Prize Fellowship from the Engineering and Physical Sciences Research Council

**Federica Ragusso**  
Research Postgraduate, Department of Chemistry  
Awarded the Alfred Bader Prize for Organic Chemistry

**Professor Tarun Ramadorai**  
Professor of Financial Economics,  
Department of Finance  
Winner of 2019 Wharton Research Data Services’ Best Paper award

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**Dr Richard Brookes, Brandon Blackwell Caleb Rick and Conor McMeel,**  
were the winning team of University Challenge 2020
Dr Saravana Ramsamy
Welcome Trust Sir Henry Dale Fellow, Institute of Clinical Sciences
Accepted onto the EMBO Young Investigator Programme

Myrdin Rees
Consultant General and Maternity Surgeon, Hampshire Hospitals NHS Foundation Trust
OBE for services to Liver cancer surgery

Caleb Rich
Research Postgraduate, Department of Physics
Part of the winning team on University Challenge 2020

Professor Esther Rodriguez-Villegas
Professor in Low Power Electronics, Department of Electrical and Electronic Engineering
Elected to the Fellowship of the Royal Academy of Engineering

Dr Phillipp Thomas
Lecturer in Biomechanics, Department of Mathematics
Awarded a Future Leaders Fellowship from UK Research and Innovation to develop the maths for new models of living cells

Professor Richard Thomas
Royal Society Research Professor (Pure Mathematics), Department of Mathematics
Awarded a Royal Society Research Professorship

Professor Emma Thomson
PhD Medicine 2010
OBE for services to the NHS during the COVID-19 response

Regius Professor Chris Toumazou
Winston Wong Chair, Biomedical Circuits, Department of Electrical and Electronic Engineering
Awarded a President’s Special Award for Pandemic Service by the Royal Academy of Engineering for his lab-free COVID-19 tests that deliver results in under 90 minutes

Professor Roberto Totta
Professor of Astrophysics, Department of Physics
Awarded the Royal Astronomical Society’s Annie Maunder Medal 2020 for his work promoting public understanding of cosmology and astrophysics

Faisal Tuddy
BSc Physics 1993
BEF for services to the pharmaceutical sector during COVID-19

Dr Paul Turner
Reader in Paediatric Allergy and Clinical Immunology, National Heart and Lung Institute
Awarded the 2020 European Academy of Allergy and Clinical Immunology PAHIT Award

Dr Cynthia Vidal
Marie Sklodowska Curie Fellow, Department of Physics
Awarded the Marie Sklodowska-Curie Individual Fellowship

Professor Sir Tejinder (Jim) Virdie
Professor of Physics, Department of Physics
Awarded the 2020 Blaise Pascal Medal for Physics by the European Academy of Sciences

Dr Abigail Waldron
Marie Sklodowska Curie Fellow, Department of Physics
Awarded the Marie Sklodowska-Curie Individual Fellowship

Steve Walker
Fire Safety Adviser, Estates Operations
Elected as Chairperson of the Universities Safety & Health Association (USHA) Fire Safety Group, London Region