

Imperial College  
London

# Imperial College Foundation

Annual report  
October 2023

# Imperial College Foundation

**Donations to the Imperial College Foundation over the last year have supported areas including outreach activities, student assistance, and innovative research. The ongoing generosity and commitment of our US-based donor community remains vital in our mission to deliver excellence in research and education for the benefit of society.**

We are immensely proud that Imperial, according to the most recent National Student Survey (NSS), is now ranked first among fellow London Russell Group universities for student satisfaction with teaching, and second placed among all Russell Group institutions nationally. The results confirm that Imperial is one of the best universities in the world to be a student. The successes are a testament to our innovative approach to education, world-changing research, vibrant London base, and diverse community which attracts excellent students from across the world, as also evidenced by our world top-ten ranking.

As well as being central to our research mission, the philanthropic support of Imperial College Foundation is helping to ensure that financial barriers do not stand in the way of talented students and their academic successes. We are extremely grateful for those who have supported our staff and students and look forward to continuing to partner with the Foundation to achieve success both throughout College life, research and beyond.

The updates to follow summarise the ways in which gifts to Imperial College Foundation have enabled exceptional impact in our community and work. We remain immeasurably grateful to the Board of Imperial College Foundation for your continued support of our students, staff, and research mission.

## Championing molecular science engineering

### **Dr Theo George Wilson Annual Lecture**

Donor to the Foundation and Imperial alum, Dr Theo Wilson, is generously supporting the Institute of Molecular Science Engineering's (IMSE's) Annual Lecture. The Dr Theo George Wilson Lecture is the flagship event in IMSE's calendar of activities and draws together a diverse audience from across Imperial's student and staff body, as well as from our community of friends and stakeholders.

Dr Wilson completed his PhD in the Department of Chemistry in 1952. In the spirit of IMSE's collaborative ethos, he decided to make a gift to Imperial with the aim of gathering experts from different disciplines around the globe to deliver a prestigious series of lectures.

Dr Wilson also sponsors two scholarships, the Dr Theo George Wilson Scholarship and the Institute for Molecular Science and Engineering Master's Scholarship. The scholarships are awarded for academic excellence and aim to decrease the barriers and increase access to higher education for those from disadvantaged backgrounds, and as a result, increase equality and inclusion.



## Dr Theo George Wilson Scholarship for the Molecular Engineering MRes



*Allison Arber is the recipient of the 2021 Dr Theo George Wilson Scholarship for the Molecular Engineering MRes. Originally from North Carolina, Allison studied a theoretical chemistry masters at the University of Oxford before coming to Imperial. Allison was drawn to the IMSE MRes because of its interdisciplinary nature.*

### **Why did you choose to study at Imperial?**

It was very much programme-dependent, and I liked that at Imperial they gave academics freedom to set up Institutes like IMSE. I did not find this at other universities. So, when I was looking at graduate programmes, what really excited me about the IMSE was the fact that it was interdisciplinary.

I felt like it was a good opportunity for me to expand my horizon and gain insight into different types of skills and gain exposure to fields that otherwise I would not have any contact with.

### **What is your favourite part of the IMSE course?**

The breadth of the course. The IMSE course has touched on so many different exciting areas of research and given me opportunities to explore areas I would have not had exposure to if I had chosen to study elsewhere.

### **What project are you currently working on?**

My project is working with BASF, the world's largest chemical provider. The project focuses on the crystallisation of paracetamol, and it is remarkably interesting. Whilst collaborating with Professor Jerry Heng's and Professor Nic Harrison's groups, Professor Heng observed a strange regrowth behaviour that no one can explain.

Currently, I am working part-time in the lab growing crystals and using computational models to both describe what the crystals are doing and if we can we observe this and produce a type of theoretical basis of understanding.

Long-term, the goal is to find a way to link this to the manufacturing procedures that BASF use, and I do hope I can continue doing something similar in a PhD in the future.

### **Do you have any ideas now about what you may want to do after you finish your degree?**

I am currently looking at completing a PhD when finished with my MRes. I am interested in a materials or process design where I can combine theory with experiments. My ideal type of project would be one where I can make a model of a system and then use it to either optimise a material, or a type of process.

### **How has the scholarship helped you with your studies?**

The scholarship gave me the freedom to choose what I thought was right for me, without worrying about the financial aspects of my courses and I am incredibly grateful to those who have made my studies here possible.

## **Exploring the potential of therapeutic psychedelics**

Since its launch, the Centre for Psychedelic Research has taken a leading role in investigating the potential use of psychedelics to treat various mental health conditions and explore consciousness.

Over the past twelve months, researchers at the Centre have continued to push the frontier of brain sciences; investigating the therapeutic potential of psychedelics for an array of treatment-resistant mental health conditions and mapping the psychedelic experience to understand how it may be beneficial.

## **Psilocybin alters brain connectivity in people with depression**

Psilocybin, among the many psychedelics currently under exploration as potential treatments for psychological conditions, continues to garner attention in the Centre's ongoing psilocybin-assisted therapy trials. The team have continued to build on the study into psilocybin versus escitalopram for depression, which was published in the New England Journal of Medicine last year. The team performed a thorough analysis of 60 brain scans from patients, looking to gain new insights into the brain connectivity effects of psilocybin.

Researchers looked to identify changes in communication and connectivity across different regions of the brain. Combining the results from two studies, the findings reveal an intriguing observation: individuals who responded positively to psilocybin-assisted therapy exhibited enhanced brain connectivity (or integration) not only during the treatment but also for up to three weeks thereafter. This unique "opening up" effect was not observed in patients treated with a conventional antidepressant-like escitalopram. These significant findings mark the first observation of potential neuromechanistic in which differences between the actions of psilocybin and traditional antidepressants.

Published in Nature Medicine, these results represent a promising breakthrough in the field of psilocybin therapy. They shed light on how patients suffering from depression often experience rigid and ingrained patterns of brain activity. Psilocybin possesses the ability to disrupt these maladaptive and cyclical thought patterns in ways that conventional therapies, including antidepressants, seem incapable. Initial changes in brain activity observed just one day after treatment seem to serve as a reliable indicator of whether individuals will continue to experience improved symptoms six months later.



*Professor David Nutt, The Edmond J Safra Chair in Neuropsychopharmacology.*

## **Transforming how the world responds to pandemics**

Launched in September 2022, the Jameel Institute-Kenneth C. Griffin Initiative for the Economics of Pandemic Preparedness is using pioneering integrated economic-epidemiological modelling to provide critical data and analysis to inform public health decisions related to pandemic preparedness and disease outbreaks around the world.

Under the leadership of Katharina Hauck, Professor for Health Economics and Deputy Director of the Jameel Institute, the new initiative brings together epidemiologists, economists, and data modellers from across Imperial, together with researchers from the World Health Organisation and Singapore's Programme for Research in Epidemic Preparedness and Response (PREPARE), National Centre for Infectious Diseases and Umeå University in Sweden.

Initially working with five countries including Singapore, the team will produce a publicly available digital scenario-based dashboard modelling preparedness levels of over 150 countries, as well as deep-dive studies on specific preparedness interventions. It will also provide evidence on the impact of alternative policy strategies – to governments, international health organisations and businesses, and work with partners to create a clear case for investing in pandemic preparedness.

### **DAEDALUS: A policy defining tool during COVID-19**

One of the key modelling tools that will continue to be developed by Institute staff working on the Jameel Institute-Kenneth C. Griffin Initiative for the Economics of Pandemic Preparedness, is DAEDALUS. Created by the Jameel Institute, DAEDALUS is an integrated economic–epidemiological model that computes the optimal trajectory of selective opening and closing of economic sectors, while maximising GDP and keeping infections under control.

During the COVID-19 pandemic, DAEDALUS has provided concrete policy guidance on smart opening and closure strategies differentiated by economic sectors. Before the development of this tool, there was extraordinarily little evidence on how to optimally design lockdown policies during pandemics. By necessity, DAEDALUS is based on many assumptions, but it has provided urgently needed guidance to policymakers on how to design policies that balance key societal objectives. With a few changes to the epidemiological and economic parameters, DAEDALUS can be applied to any country and respiratory pandemic that requires mitigation measures.



*Professor Katharina Huack, Professor for Health Economics and Deputy Director of the Jameel Institute.*

# Providing access to an Imperial education

## The Imperial Bursary Fund



*Marco Bruno Tomé Freire is a fourth year MEng Chemical Engineering student. He received the Imperial Bursary Fund in 2020, during his second year of study at Imperial.*

### **Why did you need to get funding from the Imperial Bursary Fund? What challenges were you facing at that time? How was it affecting your life and study?**

I was struggling to cover the steep cost of accommodation, food, and other basic expenses. Having already obtained the maximum loan from the government for tuition fees and maintenance, I was still having financial difficulties. To supplement my finances, I worked a part-time job at a bar and tutored younger students in maths and science. Due to this, I was not able to focus 100 per cent on my studies and the grades I achieved in my first year at university reflected this.

### **What did you use the support for?**

My short-term goal for the rest of my university tenure is to achieve the best grades that I can on my course, which is extremely challenging and time-consuming. When I received the bursary, I allocated a portion of it to cover the cost of my off-campus housing, including rent and utilities. The rest of the bursary was spent on covering the cost of commuting to and from the university, and expenses like groceries and clothing.

### **What difference has the support made for you, and your time at Imperial? How did it feel to receive the support?**

I feel much more in control of my future and truly believe that my work this year at university has been the best that I can achieve. This could not have been attained without the help of the Imperial Bursary.

### **Can you describe how your time at Imperial would be affected if you hadn't received the bursary?**

I would have faced greater financial challenges, which would have led to increased stress and anxiety. I know for sure that the added pressure would have negatively impacted my mental well-being and academic performance.

### **What would you like to say to people who donated to support you?**

By alleviating the financial burden, you have allowed me to focus on my studies and fully immerse myself in the academic and extracurricular experiences at Imperial. Your generosity has not only enabled me to pursue my passion for Chemical Engineering but has also helped shape my personal and professional development.

### **Why did you choose to study at Imperial? How did it feel when you got your place?**

Imperial College has a world-class reputation. I was extremely grateful to study at a university renowned for its excellence in education. Not only this, but I am also passionate about STEM and Imperial provides cutting-edge resources, research opportunities and access to leading experts in my field. Imperial has strong connections with various industries, and I was excited to be involved with networking opportunities and internships that could help launch my career.

### **What are your plans after your degree?**

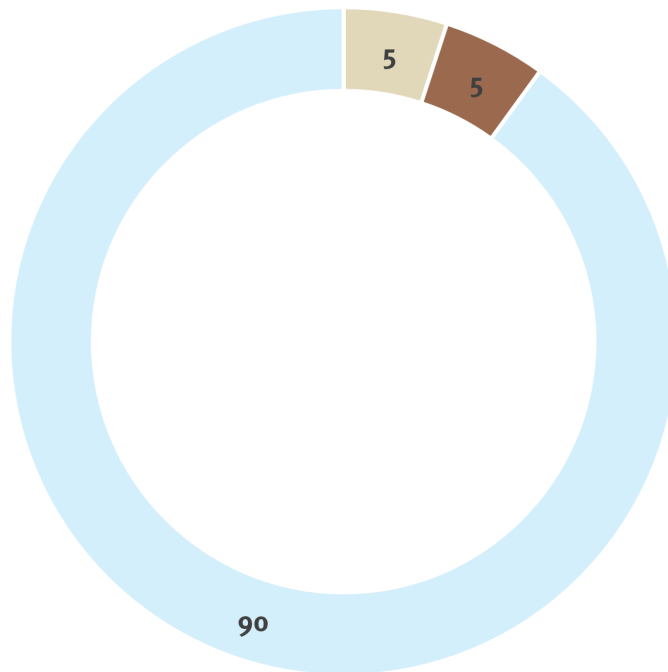
I am interested in the research and development of new techniques to limit the impact of anthropogenic pollution. I aspire to pursue a career in industry relating to the renewable energy field and energy storage, to further the global green energy transition toward Net-Zero.

## Financial summary

### Funds supported - 1 August 2022 to 31 July 2023

<b>Fund</b>	<b>Amount</b>
Economics of Pandemic Preparedness research programme	\$701,081.00
Research in Psychedelics (Faculty of Medicine)	\$300,000.00
Anorexia Nervosa Research (Psychedelics Research)	\$290,954.28
Student Support Fund	\$24,536.44
Student Assistance Fund	\$19,040.00
Imperial Bursary Fund	\$17,423.42
Dean's Fund - Faculty of Engineering	\$17,042.00
President's Scholarship Fund	\$13,650.00
Department of Chemical Engineering	\$13,000.00
Department of Physics	\$12,500.00
The Enterprise Lab (Imperial College Business School)	\$10,000.00
Pre-term Birth Research Group (Faculty of Medicine)	\$10,000.00
Silicosis and Tuberculosis Research (NHLI)	\$ 5,000.00
Outreach Programs Fund	\$ 4,000.00
Department of Civil and Environmental Engineering	\$2,000.00
Department of Electrical & Electronic Engineering	\$2,000.00
Roger Sargent Student Support Fund	\$2,000.00
Dean's Fund - Faculty of Natural Science	\$1,365.00
Dean's Fund - Faculty of Medicine	\$1,319.00
Presidential Scholarship for Black Students	\$1,150.00
Department of Mechanical Engineering	\$1000.00
Dean's Fund - Imperial College Business School	\$320.00
Schistosomiasis Control Initiative	\$310.00
<b>Total</b>	<b>\$ 1,449,692.05</b>

Area of support	Amount
Departmental support	\$ 64,546.91
Student support – scholarships, bursaries, hardship funding	\$ 77,799.86
Research	\$1,307,345.28
<b>Total</b>	<b>\$ 1,499,692.05</b>



■ Departmental support   
 ■ Student support - scholarships, bursaries, hardship funding   
 ■ Research