The London International Youth Science Forum

Founder Patron:
HRH Prince Philip, Duke of Edinburgh OM KGKT, 1959-1969

Past Patron:
HRH The Duke of Kent KG, 1983-1988

President:
Prof. Richard O'Kennedy Dip FS BSc PhD C.Biol FSB FI.Biol.L (Ireland) (2005 - present)

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Sir John Cockcroft OM 1963-1967
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Chairman:
Mr Mike Clark (2009 - present)

Director:
Mr Richard Myhill (2009 - present)

Past Directors:
Mr Phillip S. Green MBE (1959 - 1963)
Mr George McGowan (1964 - 2003)
Mr John Needle (2003-2008)
Associated with LIYSF since 1984

LIYSF Science Advisor:
Dr. Arthur Tarrant PhD FIstD FCIBSE FSLL CPhys CEng

Front cover image: Atlas Recycled is the renowned sculpture by American artist Tom Tsuchiya. This sculpture of the mythical Greek titan Atlas, doubles as a recycling receptacle for aluminium, plastic, and paper. Atlas itself is made of reused materials including wood, plastic, steel, old maps and atlases. Since 2010, Atlas has been exhibited in various cities including New York City, Washington D.C. and Cincinnati to promote sustainability and recycling.
See: www.atlasrecycled.com - www.tomtsuchiya.com

Founded in 1959, LIYSF aims to give a deeper insight into science and its applications for the benefit of all mankind and to develop a greater understanding between young people of all nations.

LONDON INTERNATIONAL YOUTH SCIENCE FORUM
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The Prime Minister
2010 - Present

10 DOWNING STREET
LONDON SW1A 2AA

THE PRIME MINISTER

July 2015

I am delighted to send a message on the occasion of the 57th London International Youth Science Forum. These two weeks present an exciting opportunity for you to meet with colleagues from all over the globe, develop new friendships and partnerships for the future.

These relationships will be essential as we increasingly work together, across international borders, in pursuit of the most incredible scientific discoveries. The Forum's theme of 'Science' - The Universal Endeavour' therefore comes at a good time.

I wish you all the best for a successful Forum.

Represented Countries

The following countries and territories will be represented this year:

Argentina
Australia
Austria
Bangladesh
Belgium
Brazil
Bulgaria
Canada
Catalonia
China
Cyprus
Czech Republic
Egypt
England
Estonia
Finland
France
Germany
Ghana
Greece
Guernsey
Hungary
India
Indonesia
Iran
Iraq
Ireland
Israel
Italy
Jamaica
Japan
Latvia
Luxembourg
Macau
Malaysia
Malta
Mexico
Netherlands
New Zealand
Nigeria
Northern Ireland
Norway
Philippines
Poland
Portugal
Romania
Russia
Scotland
Singapore
Slovenia
South Africa
South Korea
Spain
Sri Lanka
Sweden
Switzerland
Taiwan
Thailand
Trinidad And Tobago
Tunisia
Turkey
UAE
Ukraine
USA
Wales

President
Professor Richard O'Kennedy

July 2015

It gives me great pleasure, as President, to welcome you to the London International Youth Science Forum (LIYSF) for 2015.

LIYSF is a superb opportunity to meet scientists from all over the world and to learn about and debate the great challenges in science. You will hear some of the world's leading scientists discuss their research and its implications at a global level. You will learn a great deal from the other participants in terms of their scientific knowledge, their culture and their traditions and how they view the world. Perhaps you may find that your ideas will be changed and whole new areas of interest arise that may change your life.

I know that as a former participant, I greatly enjoyed all aspects of the programme both scientific and social and have made friends for life. Indeed, the Forum has had a huge impact on my career choices and has clearly shown me that science is a great catalyst for bringing people together to solve issues with global dimensions. However, above all it has demonstrated that we are all 'citizens of the world' and whatever our role we must ensure active engagement from scientists to achieve the necessary outcomes for the good of humanity.

I am confident that coming on the Forum will be a wonderful experience and I look forward to meeting you.

Richard O'Kennedy

Richard O'Kennedy
President, London International Youth Science Forum
Professor of Biological Sciences & Scientific Director, Biomedical Diagnostics Institute,
Dublin City University (DCU).

Director
Richard Myhill

In 1959, what was then called the 'Science Fortnight', began with the belief that "out of like interests, the strongest friendships grow", gathering students from a handful of European countries. Today in 2015, we hold the same belief, but have expanded somewhat attracting over 450 students from more than 65 countries worldwide!

LIYSF has a full, rich and varied programme with incredible lectures and speakers, visits to world leading departments, debates and an engaging social programme. As Director, it is my job each year to bring this all together. I work throughout the entire year, carefully managing all aspects and development of the Forum, to ensure that we fulfil and exceed the responsibility and expectations of our attending students, supporting organisations and governments. It is with great pleasure that I welcome you to London and hope that you have a wonderful time at the Forum.

History

LIYSF was the brainchild of the late Philip S Green. In the aftermath of the Second World War an organisation was founded in Europe by representatives from Denmark, Czechoslovakia, the Netherlands and the United Kingdom in an effort to overcome the animosity resulting from the war. Philip decided to provide a coordinated programme on science with home to home exchanges between schools and communities. HRH The Duke of Edinburgh agreed to be Patron of the event and spoke at the first Opening Ceremony in 1959. Within a short period, interest in LIYSF spread across the UK and beyond Europe to the USA and Canada, and later across the five continents. As a result, the meeting gradually changed. Instead of being based on home to home exchanges, it became a residential meeting with its participants living in University Halls of Residence.

In the seventh decade of its existence the structure of LIYSF and its participation is constantly evolving, but our core principle remains. We pride ourselves in welcoming the best science students from across the world to participate in plenary lectures, seminars, visits to research establishments and cultural exchanges to put science into perspective and to encourage those attending to be aware of the needs of the world. For more information please visit http://www.liysf.org.uk/liysf-history.

Science Advisor - Dr. Arthur Tarrant

For the last three decades, LIYSF has been privileged to have had the unrivalled contribution and help of Dr. Arthur Tarrant. Initially, he came to deliver his amazing lecture demonstration 'Colour is Fun', but swiftly became part of the LIYSF 'family'. Over the years, his advice, both academic and practical, has been invaluable. His enthusiasm for LIYSF has been a vital part of the event for generations of Forum participants. Dr. Tarrant remains very active in maintaining the lecture: he is after all one of Britain's greatest experts in the field! We sincerely hope that he will continue to contribute to LIYSF for a very long time to come.

Chairman
Mike Clark

July 2015

LIYSF 2015 aims to cover all areas of science, but the theme this year will be based on international collaborations in science; **"Science - The Universal Endeavour".**

Science is a global endeavour which calls for international collaboration and discussion to tackle the issues that the world is facing today, such as; energy, food and water security, climate change, biodiversity and potential pandemics. We will consider how the increasingly integrated scientific community can best address global issues. The development of science on an international level allows for a new path to be paved that could break away from historical ties and proximity factors.

It gives me great pleasure this year, with more than 450 young scientists from over 65 countries represented, to welcome you all to London to explore this theme. Your programme will include lectures from eminent scientists and researchers; with visits to some of the world's leading universities and research organisations, whilst enjoying a rich social programme.

The success of this year's Forum will occur through your energy, enthusiasm, questions and contributions, plus the friendships you will make here and what you will learn from each other amid the diverse cultures that LIYSF brings together.

A very warm welcome to London and LIYSF 2015.

Mike Clark
Chairman

The Agenda

Wed 22nd July	10.00hrs – 16.00hrs	Arrivals
	20.00hrs – 21.00hrs	Welcome in Halls of Residence
Thurs 23rd	11.00hrs – 12.30hrs	LIYSF Opening Ceremony, Ondaatje Theatre - Royal Geographical Society
		Key Note Address - Professor Fiona Watt: 'Stem Cells - Promise and Reality'
	15.15hrs – 15.45hrs	Programme Introductions. The Great Hall
	15.45hrs – 17.30hrs	Lecture/Demonstration - Professor Sir Roy Anderson: 'Viruses and Bacteria'. The Great Hall
	17.30hrs – 18.30hrs	Sale of Optional Excursions. The Great Hall
	20.30hrs – 23.30hrs	Welcome Party, Chelsea Old Town Hall
Fri 24th	09.00hrs – 13.00hrs	Visits to Research & Scientific Establishments in London
	14.00hrs – 17.30hrs	Lecture/Demonstration - Professor Mercedes Maroto-Valer: 'The Energy Trilemma'. Huxley Lecture Theatre
	18.30hrs – 22.00hrs	The Science Forum Bazaar - Student Project Poster Board Evening Imperial College Atrium / Mechanical Engineering Foyer
Sat 25th	10.30hrs – 12.00hrs	Lecture/Demonstration - Dr Michael Londesborough: 'The Amazing Boron Hydrides: From Rocket Fuels to Microelectronics and Laser Materials'. SAF
	14.00hrs – 16.00hrs	Optional London Sightseeing Tour and London Eye
	20.00hrs – 22.00hrs	FameLab LIYSF - Student Topics. SAF Lecture Theatre
Sun 26th	09.00hrs – 17.00hrs	Optional visit to Stonehenge & Salisbury
	20.00hrs – 21.15hrs	Student Debate Evening, Led by Dr. Paul Flicek, 'Do Large International Scientific Collaborations Have an Impact?' SAF Lecture Theatre
Mon 27th	09.30hrs – 17.00hrs	Specialist Study Day: 'Science - The Universal Endeavour' Led by Sir Colin Terry. The Great Hall
	19.30hrs – 22.00hrs	LIYSF Great Crossword Treasure Hunt. Queen's Lawn
Tues 28th	08.00hrs – 18.00hrs	National Visits to Research & Scientific Establishments
	19.30hrs – 22.30hrs	Optional Theatre night

Principal Lectures and Demonstrations | Specialist Lectures | Visits

Wed 29th	10.00hrs – 12.00hrs	LIYSF Alummni Specialist Lectures. Sir Alexander Fleming Building
	14.00hrs – 15.30hrs	Lecture/Demonstration - Professor Mark McCaughrean: 'Rosetta: To Catch a Comet!'. SAF Lecture Theatre
	19.30hrs – 21.00hrs	British Council Lecture Session. SAF Lecture Theatre
Thurs 30th	08.00hrs – 17.30hrs	Day Visits to Oxford & Cambridge Research and Scientific Establishments
	19.30hrs – 21.30hrs	Rehearsals, Ethos Sports Hall
Fri 31st	10.00hrs – 12.00hrs	Specialist Lectures. Sir Alexander Fleming and Skempton Building
	13.30hrs – 15.00hrs	Lecture/Demonstration - Professor Sue Gibson: 'Molecules Amid a Changing World'. SAF Lecture Theatre
	15.30hrs – 18.00hrs	Visits to Science & Natural History Museums
	20.30hrs – 22.00hrs	International Cabaret – Cultural Showcase Performance Evening Chelsea Old Town Hall
Sat 1st Aug	10.30hrs – 12.30hrs	Lecture/Demonstration - Huw James: 'The Power of Curiosity'. SAF Lecture Theatre
	15.00hrs – 17.00hrs	LIYSF Olympics. Ethos Sports Hall
	19.45hrs - 21.15hrs	Lecture/Demonstration - Dr Cyril Isenberg: 'Magic of Soap Bubbles'. SAF Lecture Theatre
Sun 2nd	09.00hrs – 16.00hrs	Optional visit to Hampton Court Palace and the Tower of London
	20.00hrs – 22.00hrs	Traditions of Home – Sharing World Customs and Fashion Chelsea Old Town Hall
Mon 3rd	10.00hrs – 12.00hrs	Specialist Lectures. Sir Alexander Fleming and Skempton Building
	14.00hrs – 16.00hrs	Optional Visits to State Rooms at Buckingham Palace and London Eye
	19.30hrs – 22.30hrs	Optional Theatre Night
Tues 4th	10.00hrs – 12.00hrs	Participant's Forum. SAF Lecture Theatre
	14.30hrs – 16.00hrs	Lecture/Demonstration - Professor Lord Robert Winston: 'Cross-over Biology' SAF Lecture Theatre
	16.00hrs – 16.30hrs	Closing Ceremony. SAF Lecture Theatre
	20.00hrs – 23.00hrs	Farewell Party. Chelsea Old Town Hall
Wed 5th	08.00hrs – 10.00hrs	Departures

Social Programme

Optional Visits

Opening Ceremony

Key Note Address

Professor Fiona Watt FRS
King's College London

Stem Cells - Promise and Reality

It is hard to ignore the publicity surrounding stem cells - from 'miracle cures' to the dangers of human cloning. But what is the reality? This key note address will consider the different types of stem cell that have been discovered and the ways they are being used to understand and potentially treat diseases that are currently incurable.

Professor Fiona Watt FRS is the director of the Centre for Stem Cells and Regenerative Medicine, King's College London. She is internationally recognised for her work on stem cells and their interactions within the niche of healthy and diseased skin.

She became the first woman president of the International Society of Stem Cell Research (ISSCR) in 2008, and has advocated on behalf of women in science. Fiona Watt obtained her first degree from Cambridge University and her DPhil, in cell biology, from the University of Oxford. She was a postdoc at MIT, where she first began studying differentiation and tissue organisation in mammalian epidermis. She established her first research group at the Kennedy Institute for Rheumatology in London and then spent 20 years at the CRUK London Research Institute. She helped to establish the CRUK Cambridge Research Institute and the Wellcome Trust Centre for Stem Cell Research and in 2012 she moved to King's College London to found the Centre for Stem Cells and Regenerative Medicine. From 2006 to 2012 she was Deputy Director of the Cancer Research UK Cambridge Research Institute and Deputy Director of the Wellcome Trust Centre for Stem Cell Research, University of Cambridge.

Fiona Watt has received numerous awards and honors. She is a Fellow of the Royal Society, a Fellow of the Academy of Medical Sciences, a member of the European Molecular Biology Organisation and a member of the Academia Europaea. She is also an honorary foreign member of the American Academy of Arts and Sciences. She has received the CE.R.I.E.S. Research Award of Chanel, the American Society for Cell Biology Women in Cell Biology Senior Award and the FEDERA award of the Dutch Federation of Medical Scientific Societies. She is past president of the British Society for Cell Biology and the International Society for Stem Cell Research. Her service to scientific publishing includes serving as editor in chief of the Journal of Cell Science and deputy editor of eLife. She is a member of several scientific advisory boards, including the Canadian Stem Cell Network, the Harvard Stem Cell Institute, the Mechanobiology Institute, Singapore (MBI), and the Institute of Molecular Biotechnology of the Austrian Academy of Sciences (IMBA). She is a fellow of the Academy of Medical Sciences (since 2000) and Royal Society (since 2003). She is an outspoken advocate of women in science and has trained over 40 PhD students and over 60 postdoctoral researchers, many of whom have gone on to pursue highly successful independent research careers.

President's Welcome

Professor Richard O'Kennedy

LIYSF President

Dublin City University

Since 2005, Professor Richard O'Kennedy has been the academic President of LIYSF. Richard is Professor of Biological Sciences and Scientific Director of the Biomedical Diagnostics Institute at Dublin City University (DCU). He is former Vice-President for Learning Innovation in DCU, (since, Vice- President of the Institute of Biology of Ireland and represents Ireland and the Royal Irish Academy (RIA) on the Biosciences committee of the European Academies Science Advisory Council). He directs the Applied Biochemistry Research Group, internationally recognised for its expertise in antibody generation and immuno/ biosensor assay development, has published extensively (210 peer-reviewed papers, 25 reviews, 30 book chapters, 1 book and another in preparation) and has mentored 60 Ph.Ds to completion. He is a member of the Industrial Research and Commercialisation Committee at Enterprise Ireland, reviews for many journals/ international scientific bodies, edits three journals, has patents and licensed technologies/reagents and works closely with Irish/ international companies. He is a recipient of the Biochemistry medal of the RIA, President's awards for Teaching and for Research, the Fujitsu Innovation award and he coordinates the Masters in Biomedical Diagnostics which received the Outstanding Masters award in 2011. In 2014, he was elected to membership of the Royal Irish Academy.

Principal Lectures and Demonstrations

Thursday 23rd July

Professor Sir Roy Anderson
Imperial College London

Plagues and People

The last few decades have seen the emergence and spread of a number of novel pathogens, including HIV, the SARS virus, BSE and the novel strain H1N1 of influenza A. The lecture will discuss the factors that promote the emergence and spread of pathogens with a special focus on our changing world. Many features of our globally connected world promote both emergence and spread of viruses, bacteria and other pathogens. These include, population growth, air travel, urbanisation and livestock production and sale. The lecture will also discuss how we currently plan to combat plagues with behavioural changes, drugs and vaccines.

Sir Roy is Professor of Infectious Disease Epidemiology in the School of Public Health, Faculty of Medicine, Imperial College London. His recent appointments include Rector of Imperial College London and Chief Scientists at the Ministry of Defence, UK. Sir Roy has also served as Director of the Wellcome Centre for Parasite Infections and the Wellcome Centre for the Epidemiology of Infectious Disease. He is the author of over 450 scientific articles and has sat on numerous government and international agency committees including the World Health Organisation and UNAIDS. He currently is a Trustee of the Natural History Museum and chairs the science advisory board of WHO's Neglected Tropical Diseases programme.

Friday 24th July

Professor M. Mercedes Maroto-Valer
Heriot-Watt University

The Energy Trilemma

Energy, water and food are inextricably linked, and as the global population is expected to surpass 8 billion by 2030, we can anticipate an associated global increase in the requirements of the energy-water-food nexus of around 50% for energy and food, and 30% in relation to fresh water. This presents us with a formidable triple challenge, known as the 'energy trilemma', to develop technologies that can address energy security, energy equity, and environmental sustainability. This plenary lecture will discuss the links between the energy-food-water nexus and the energy trilemma, highlighting options for achieving a balance.

Professor Maroto-Valer is the Buchan Chair in Sustainable Energy Engineering, Head of the Institute for Mechanical, Processing and Energy Engineering and Director of Energy Academy at Heriot-Watt University, Edinburgh, Scotland. Professor Maroto-Valer's team has established an international research reputation at the interface between energy and the environment. She leads a team of 20 researchers developing novel solutions to meet the worldwide strive for cost-effective and environmentally-friendly energy, with particular emphasis on clean energy technologies, including carbon dioxide capture, transport, storage and utilization. She has over 350 publications, and is the editor of 3 books. She is Fellow of the Royal Society of Edinburgh (FRSE), Royal Society of Chemistry (FRSC) and Fellow Institute of Chemical Engineers (FIChemE). She holds leading positions in professional societies and editorial boards and has received numerous prestigious international prizes and awards.

Saturday 25th July

Dr. Michael G. S. Londesborough
Czech Academy of Sciences

The Amazing Boron Hydrides: From Rocket Fuels to Microelectronics and Laser Materials.

Two elements form a diverse and rich series of hydrides - carbon and boron. The hydrocarbons define the chemistry of our planet (you are a hydrocarbon!). The boron hydrides (boranes) do not occur naturally, and were first made 100 years ago by the German chemist Alfred Stock. Whereas the hydrocarbons form chain-like and ring structures, the boranes form polyhedral cluster architectures. Since their first syntheses, borane chemistry has passed through an initial period of top secret research, to current day ground-breaking usage in modern medicine, microelectronics and now as a new laser material.

Dr Londesborough graduated with a first-class degree in Chemistry and received his Ph.D from the University of Leeds (Thesis on Macropolyhedral Boranes won JB Cohen prize). For the last eleven years he has been a researcher at the Institute of Inorganic Chemistry, Czech Academy of Sciences in Prague. At his institute, he is a congress representative, council member and chairs the scientific council. In 2015, he published the discovery of the first borane laser. Author/co-author of 40 scientific papers (242 citations), two book contributions and one international patent. Author and presenter of a weekly science program broadcasted on national Czech television, winning the 2008 TECHFILM award. Awarded the Vojtéch Náprstek Medal, the SCIAP special prize and Czech Academy of Sciences President's medal.

Sunday 26th July

Student Debate
Dr. Paul Flicek
EMBL

Do Large International Scientific Collaborations have an Impact?

During this debate we will consider the Human Genome Project as a case study and consider the effect and impact in both the scientific society and to the wider public of such collaborations. Are they necessary and are they the best way to use such large amounts of resources?

The debate is led by Paul Flicek. Paul is a team leader and senior scientist of the European Molecular Biology Laboratory and leads the Vertebrate Genomics team at the European Bioinformatics Institute (EMBL's Hinxton Outstation) near Cambridge, England. He is head of the collection of EBI resources focused on genes, genomes and variation and in this role provides strategic leadership of the seven faculty groups that provide all of EBI's genomics and variation databases and resources. He is currently joint head of the Ensembl project and also has leadership roles in data management activities for the 1000 Genomes Project, the International Human Epigenome Consortium (IHEC) and the International Mouse Phenotyping Consortium (IMPC). Paul has a Bachelor of Science in Physics from Drake University in Iowa, USA. He worked for four years as a medical health physicist and active duty army officer at Walter Reed Medical Center in Washington, DC, before moving to St. Louis and earning a DSc in Biomedical Engineering from Washington University in addition to an MSc in Computer Science.

Principal Lectures and Demonstrations

Wednesday 29th July

Professor Mark McCaughrean
European Space Agency

Rosetta: To Catch a Comet!

The European Space Agency's mission Rosetta captured the imagination of the world in 2014, as it rendezvoused with Comet 67P/Churyumov-Gerasimenko and deployed a lander, Philae, to its surface. This lecture will give a behind-the-scenes view of the mission, its history, its 10-year journey to reach the comet, and the exciting events that have been taking place there. This lecture will present some of the early results as scientists unlock this treasure chest of information about the formation of our solar system and the origins of water and perhaps even life on Earth. And finally, a look forward to the rest of the mission: the best is yet to come!

Professor Mark McCaughrean works for the European Space Agency at ESTEC in the Netherlands, where he is the Senior Scientific Advisor in the Directorate of Science and Robotic Exploration. He is also responsible for communicating the scientific results from ESA's astronomy, heliophysics, planetary and fundamental physics missions to the scientific community and the wider public. After receiving his PhD from the University of Edinburgh, he has worked in the US, Germany, the Netherlands, and the UK, where he taught as a professor of Astrophysics at the University of Exeter. His personal research involves observational studies of the formation of stars and their planetary systems using state-of-the-art ground and space-based telescopes. He is also an Interdisciplinary Scientist for the NASA/ESA/CSA James Webb Space Telescope.

Wednesday 29th July

Dr. Tim Slingsby
British Council

British Council Session

The work of the British Council will be showcased in this informative and entertaining session. One of the British Council's five charitable purposes is to encourage cultural, scientific and technological cooperation between the UK and other countries. The British Council support science through STEM education initiatives; science and arts work; research partnership programmes; policy dialogues; supporting the capacity building of institutions; skills development and mobility of early-career researchers.

Tim is the British Council's Advisor for Public Engagement in Science. He studied Human Genetics at the University of Nottingham, and then completed a PhD in Molecular Genetics at the University of Leicester. Tim has notable experience of science enrichment activities for schools and a considerable understanding of science communication in academia and in both private and public sectors. At the British Council Tim works to develop science and research-based collaborations between the UK and other countries, has keen interest in international development agenda and expertise in global policy dialogues, public engagement and STEM education initiatives. Tim is proud to be the British Council's FameLab International manager.

Friday 31st July

Professor Sue Gibson OBE
Imperial College London

Molecules Amid a Changing World

Kevlar, penicillin and taxol are all molecules that have had a major impact on the world in which we live. In recounting the discovery and commercial development of these molecules, several common themes will emerge and it will become clear that their stories are inextricably intertwined with societal issues such as protecting the environment and the prudent use of dwindling energy sources.

Professor Sue Gibson is the chair in chemistry and director of the graduate school at Imperial College London. Sue grew up in Lancashire and fell in love with organic chemistry whilst studying at Cambridge. Her independent research career focussed on using transition metal compounds to synthesise organic molecules, and the work of her research group attracted both international interest and industrial funding.

Sue is the main author on over 160 publications. Her group has graduated 42 Ph.D. students and hosted 15 post-doctoral workers to date. Their work has won several awards from the Royal Society of Chemistry and the pharmaceutical industry, and Sue was awarded the first Rosalind Franklin Award of the Royal Society in 2003 (for outstanding contribution to science, technology, engineering or mathematics). In 2013 she was awarded an OBE for her services to Chemistry and Science Education. Between 2007 and 2010, Sue served as the President of the Organic Division of the Royal Society of Chemistry and she currently chairs the RSC's Awards Committee.

Saturday 1st August

Huw James

The Power of Curiosity

The ability to be curious is born with us all but some grow out of it quicker than others. Throughout history the more curious of us have pushed the boundaries and created new theories and ideas about nature and the universe. Nowadays, it doesn't seem to be something we get taught how to do; to ask questions and answer them for ourselves. This lecture will consider the power of curiosity and why it's always important to question everything.

Adventurer, scientist and presenter, Huw James brings his brand of energy and enthusiasm to stage in shows and talks and can be seen performing at many of the science festivals and events across the UK as well as in schools. Originally trained in Astronomy and Space Science, Huw is now a fellow of the Royal Astronomical Society and Royal Geographical Society. He is an active climber, mountaineer, endurance athlete and all-round adventurer. He combines these interests together to create his unique approach to enthusing all ages about the science of the universe and the natural world.

Principal Lectures and Demonstrations

Saturday 1st August

Dr. Cyril Isenberg
University of Kent

Magic of Soap Bubbles

Everyone has enjoyed blowing bubbles. The scientific and artistic communities have also been fascinated by films and bubbles, from nuclear physicists to cosmologists and from architects to artists.

This lecture will demonstrate, on a large scale, their vibrational properties, their equilibrium and non-equilibrium surfaces and their colours. Application to solving roadway problems will also be given.

Dr. Isenberg is a solid state theoretical physicist. He gained his qualifications and early postdoctoral research experience at King's College, University of London. He subsequently worked as a resident research associate at the Argonne National Laboratory, near Chicago, Illinois, in the USA. However, most of his career was spent on the staff of the Physics Laboratory of the University of Kent at Canterbury, UK.

Tuesday 4th August

Professor Lord Robert Winston
Imperial College London

Cross-over Biology

Lord Winston is Professor of Science and Society and Emeritus Professor of Fertility Studies at Imperial College London.
He developed gynaecological surgical techniques that improved fertility treatments, in vitro fertilisation (IVF) and developed pre-implantation diagnosis. He now runs the Institute of Reproductive and Developmental Biology, Imperial College. He has over 300 scientific publications and is Chairman of the Genesis Research Trust. He is a Royal Society Faraday Medal holder. Other awards include a Wellcome Senior Research Fellowship, a Blair-Bell Lectureship RCOG, the Cedric Carter Medal, Victor Bonney Medal, Royal College of Surgeons of London Gold Medallist, Edwin Stevens Medal, Zoological Society's gold medallist (04) and Al Hammadi Gold Medal - Royal College of Surgeons of Edinburgh (05).

Robert is a Fellow of the Academy of Medical Sciences, Queen Mary College, Royal Academy of Engineering, Society of Biology, Royal College of Surgeons of Edinburgh and Glasgow. He has received 17 honorary doctorates from universities worldwide and has been a visiting professor at American, Australian and European universities. Past President of British Association for the Advancement of Science and is Council member and Chairman of the Societal Issues Panel at the Engineering and Physical Sciences Research Council and Chancellor of Sheffield Hallam University. He speaks regularly at the House of Lords. He was Chairman of the Lords Select Committee on Science and Technology (99-02). He is a board member and Vice-Chairman of the Parliamentary Office of Science and Technology and was voted "Peer of the Year" by his fellow Parliamentarians in 2008.

Monday 27th July - Science - The Universal Endeavour Specialist Study Day

09.30hrs - The Great Hall

Lecture 1

Sir Colin Terry
Meggitt Plc

Engineering

Sir Colin is a Chartered Engineer and was Chairman of the Engineering Council UK (2002-2005). In July 2004, he took over Chairmanship of Meggitt PLC, an international aerospace company in the FTSE 100, with revenue in 2012 of £1,700 million.

He has had wide experience in the public sector attaining the rank of Air Marshal (3 star General) and was Chief Engineer and Head of Logistics for the RAF with a budget of £2 billion, a workforce of 16000 based on 20 sites, responsible for over 1500 aircraft. He was a National Director of Engineering for Eurofighter and responsible for bringing the AWACS, Hercules 130J and Chinook Mk 2 into service in USA.

He is currently the Chairman of the Military Aviation Authority Safety Committee and a Director of Fox Marble. He has also advised HM Government at Cabinet level on key national and international initiatives. Sir Colin graduated in Aeronautical Engineering at Imperial College London, where he is a Fellow as well as a Fellow of the Royal Academy of Engineering. He has been a Council Member for Cranfield University, City and Guilds Institute London and Royal Aeronautical Society (and Chairman). A Deputy Lieutenant for Buckinghamshire, he is also President of the County SSAFA. He was awarded the KBE, CB and OBE (for services in the Falklands).

Lecture 2

Professor Alexandra Blakemore
Imperial College London

Obesity and Genetics

This lecture will consider how human genetic variation affects human health and disease.

Professor Blakemore is a Professor of Human Molecular Genetics in the faculty of Medicine at Imperial College London. She is also the Faculty of Medicine's Ambassador for Women, working to promote women's careers in science and supporting women in the faculty. "Some young women still think they can't mix a career in science with having a family, and we need to help them realise that they can."

Professor Blakemore has trodden a unique path to becoming a professor. Due to family circumstances she had to leave school at 16, but at the age of 25 she returned to education, studying genetics at the University of Sheffield. There, Professor Blakemore gained both a degree and PhD whilst also bringing up three young children on her own. Later in her career, she remarried and had a fourth child, and so has a particular interest in supporting scientists with family responsibilities or diverse career paths.

Lecture 3

Dr. Ceri Brenner
Rutherford Appleton Laboratory

Pressing 'Fire' on the Most Powerful Leading to a more Sustainable World

This lecture will consider working with the most powerful and intense lasers in the world and their use to super-heat solid material to millions of degrees in less than a billionth of a second, driving it into the fourth state of matter; plasma. High energy plasma physics is a very broad area of research and has explorative as well as application-driven aspects. From helping us to understand extreme astrophysical events such as supernova explosions, to the pursuit for future, clean, abundant energy sources and next generation particle accelerator technology. So, what would YOU do with the most powerful laser in the world?

Dr. Ceri Brenner is a plasma physicist interested in both research and innovation. She works with the most intense and powerful lasers in the world to carry out high-energy plasma physics research as well as engaging with industry groups interested in accessing the facilities onsite at the Rutherford Appleton Laboratory in Oxfordshire for innovation development. Ceri is specifically interested in laser-driven, micron-sized accelerators as a compact technology for the next generation of particle and light sources with applications spanning medicine to manufacturing.

Lecture 4

Dr. Dimitrios Koureas
Natural History Museum London

Bringing Together Data and People for Addressing Global Societal Challenges

Science is today generating more data than ever before. The increased number of researchers along with rapid advancements in technology is contributing to an unprecedented volume of scattered datasets. One of the key challenges in addressing big challenges of our times, including climate change or biodiversity loss, is predicated on our capacity to harness data. Researchers need to structure and share data in ways that enable global aggregation and re-use. The scientific world is challenged, for the first time in centuries, to change the way of doing science, adopting new practices and new tools. This session will consider how scientists can use new tools and new online services to innovate on a global scale.

Dr Dimitris Koureas is a biologist. He was awarded his PhD in the field of plant systematics and biodiversity. He has developed a cross-discipline expertise working on the application of information tools to the study of biodiversity. Since 2012 he has been working at the Natural History Museum as a biodiversity informatics specialist in large European projects. Dimitris is an invited lecturer at several universities including University of Oxford, Reading and Aristotle University.

Monday 27th July - Science - The Universal Endeavour Specialist Study Day

09.30hrs - The Great Hall

Lecture 5

Professor Marcus Rattray
University of Bradford

Making Medicines in the Modern Age

We are in an era of rapid scientific discoveries, aiming to understand disease and discover effective treatments. However we still lack medicines to treat many important conditions, one example being Alzheimer's disease. This lecture and associated student-led workshop will discuss how to develop safe and effective medicines and explore the science underlying medicines development, including the innovations that are being developed to conquer illnesses.

Marcus Rattray is Professor of Pharmacology and Head of the School of Pharmacy, University of Bradford. Prior to this he was a reader in Pharmacology at the University of Reading, a lecturer, then senior Lecturer in Biochemistry at King's College London, and a postdoctoral fellow at the National Institutes on Drug Abuse in Baltimore. Marcus' research interests are in understanding the processes involved in neurodegenerative diseases, particularly motor neurone disease and Alzheimer's disease and working towards the discovery of more effective medicines.

Lecture 6

Dr Alison Mather
University of Cambridge

Antimicrobial Resistance - An International Problem

Antimicrobial resistance (AMR) is one of the most serious health threats we face today - if nothing is done to reduce the problem, it is estimated that resistant infections globally will cost more than $100 trillion by 2050. An inability to treat resistant bacterial infections will have a profound effect on medicine, from hip replacements to cancer treatments. Infectious diseases are an international problem, one that doesn't recognise borders. In this lecture, we will focus on AMR in bacteria, what it is and how it spreads. We will also explore how the application of technological advances, such as large-scale whole genome sequencing, has given us a greater understanding of the problem and what we could do about it.

Dr Mather is an epidemiologist who uses approaches from ecology, statistics, and genomics to study bacteria that can infect multiple host species. Her particular research focus is on bacteria that are resistant to antimicrobial drugs, using whole genome sequencing to understand where both the bacteria and antimicrobial resistance come from and how they spread. She is a BBSRC Research Fellow at the University of Cambridge.

Lecture 7

Professor Milo Shaffer
Imperial College London

Printable Nanocarbon Electronics

Nanocarbon-based electrodes offer cheap, printable, flexible, potentially transparent films crucial for large area plastic electronics. The intrinsic performance of individual perfect nanocarbon structures is extraordinary, in both conducting and semi-conducting regimes. The challenge is to manifest these characteristics at large scale by developing reliable synthesis, processing, and assembly techniques. Recent developments in mouldable thin film transistors based on semi-conducting carbon nanotubes, and the demonstration of the first "all nanotube" computer, highlight the potential of such systems.

Milo Shaffer is Professor of Materials Chemistry at Imperial College and co-Director of the London Centre for Nanotechnology. His research combines nanomaterials synthesis, modification, for applications including composites and electrochemical devices. Recent work has produced two complementary new routes for the dispersion and surface functionalisation of carbon nanomaterials. He has previously spent time working as a consultant in new technology development and exploitation, and has ~30 patent applications, 9 licensed commercially. He has published >130 articles: >10000 citations, h=47. He was awarded the RSC Meldola Medal (2005), an EPSRC Leadership Fellowship (2008), and the RSC Corday-Morgan Prize (2014).

Lecture 8

Dr. Seth Zenz
CERN / Imperial College London

Individual Ideas, Working Together: The Discovery of the Higgs Boson

The recent discovery of the Higgs boson at CERN was the culmination of many years of work by many thousands of scientists, engineers, and technicians - many of them students. In an effort that requires so much long term planning, major engineering works, and large amounts of money, how do individual scientists contribute? This lecture will trace the flow of ideas in a big particle physics experiment, starting from individual insights, through collective discussion and refinement, on to the final world-changing output. Strategies for communication will be discussed: between independent scientists and groups in journals, in conferences, and on the web; as well as between scientists working together in formal collaborations. The examples will follow the development of the LHC and its large experiments, the discovery of the Higgs Boson, and future plans for the LHC and beyond.

Dr. Seth Zenz is a particle physics researcher at Imperial College London, working on the Compact Muon Solenoid (CMS) detector at the Large Hadron Collider (LHC) at CERN in Geneva, Switzerland. He contributes to studies of the Higgs Boson, which was recently discovered by CMS and ATLAS, the other large LHC detector. By studying specific mechanisms by which this new particle is produced and decayed, he will help determine whether it is truly consistent with the predictions for the Higgs Boson made by the Standard Model of particle physics. His current focus is on Higgs decays to pairs of photons.

Wednesday 29th July - LIYSF Alumni Specialist Lectures

10.00hrs - Sir Alexander Fleming and Skempton Building

Lecture 1

Dr. Robert Adam
Norwich University Hospital
LIYSF 1994

Dopamine, Decision making and Deep Brain Stimulation

This lecture will consider the fascinating neuropsychiatric world of the basal ganglia. The basal ganglia form a primitive output "hub" integrating sensory inputs and feedback loops from many other brain areas. Injury to the basal ganglia has multiple effects upon movement, mood, personality and motivation. This lecture will use studies from the clinical world, including patients with Parkinson's disease, stroke and Tourette's. Also considering addiction, reward and how we make decisions with reference to the unique evolutionary developments that make human brains different from other animals, while recognising that sometimes we are not all that different at all.

Dr. Adam attended LIYSF in 1994. He returned as a member of staff for several years, most recently as a Hall Host in 1998. He completed his undergraduate degree in neuroscience at Cambridge, before moving to UCL to study clinical medicine. He trained in neurology at New York University Medical Center, The National Hospital for Neurology and Neurosurgery in Queen Square, Cambridge University Hospitals and completed fellowships at Royal North Shore and Westmead Hospitals in Sydney, Australia. His PhD considered the use of eye movements to interrogate the influence of dopamine on abnormal decision-making in health and disease.

Lecture 2

Dr. Ricardo Costa
M.SQ. - Medicina
LIYSF 1975

Of Mice and Men: The Understanding of Clinical Trials

In recent years there has been heated and sometimes angry discussion about the use of animals for the experimentation of new drugs and treatment methods. This lecture shall briefly summarise the progress that has been made in the field of the experimental usage of drugs until today, and shall discuss the advantages and drawbacks of several experimentation methods used in animal models as well as in humans.

Ricardo Marques da Costa is an MD, specialised in Haematology and Transfusion Medicine with a MSc in Biology. He is the coordinator of the Haematology Department of a 600-bed hospital near Lisbon and has performed several clinical trials as principal investigator, mainly in the field of hemato-oncology. He was a participant of the Forum for the first time in 1975 and came back in the seven years that followed as a staff member. He has participated in some other instances of the Forum as a lecturer on subjects related to Haematology, Transfusion and Emergency Medicine.

Lecture 3

Jameer Emamally
Nuvia Group
LIYSF 2003

Engineering our Lives

How do discoveries made today become tomorrow's reality? How does science move from the classroom to something you can touch and feel, or something that can help you solve a problem, investigate an idea, meet the needs of a city, a person or a company? This interactive lecture will give you an introduction to engineering and an awareness of the design process as we go on a brief journey to take an idea from concept to reality.

Jameer attended LIYSF 2003. Jameer has a strong background in engineering and management,with a good track record of working in collaborative teams on both the national and international level. Jameer has project managed complex teams to deliver key submarine systems and has worked on a number of defence projects in various phases of the product lifecycle. During his career, he has worked in civilian and defence industries and across varying disciplines.

Lecture 4

Professor Christopher Kennard
University of Oxford - LIYSF 1964

The Visual Brain: "The House of Deceits of the Sight"

When we look at the world around us, the large area of the brain devoted to vision - the visual brain - processes the images received by our eyes. But how does the brain achieve this remarkable feat to provide us with the full richness of our visual perception? Within a fraction of a second, all the attributes of the scene - form, colour, motion, depth and much else besides, are each processed in separate but interconnected cortical areas, which then somehow generate a unitary visual percept. How can visual illusions, brain imaging in normal subjects and the visual consequences of damage to the visual brain in stroke patients help us to understand these processes?

Professor Christopher Kennard attended LIYSF 1964. He is the head of the Nuffield Department of Clinical Neurosciences, University of Oxford, a senior Kurti fellow at Brasenose College. He was the first professor of clinical neurology at Charing Cross and Westminster Medical School in 1991 and then became head of the division of Neurosciences and Mental Health on the amalgamation with Imperial College London in 1997, and subsequently deputy principal of the faculty of medicine. He is currently the president of the European Neuro-ophthalmological Society, and was formerly president of the Association of British Neurologists and Editor of the Journal of Neurology, Neurosurgery and Psychiatry. From 2006-2012 he chaired the UK Medical Research Council's Neuroscience and Mental Health Board. He is a fellow of the Academy of Medical Sciences.

Wednesday 29th July - LIYSF Alumni Specialist Lectures

10.00hrs - Sir Alexander Fleming and Skempton Building

Lecture 5

Judith O'Toole
Mount Temple School, Ireland
LIYSF 1985

Animals Don't Read the Text Books

In recent years, the veterinary world has provided us with many examples which illustrate how nature and science are constantly changing. The emergence of new diseases in recent years has shown us that we can never afford to become complacent, believing that if we know the facts of a subject today, we will know them tomorrow. This seminar will take a look at the history of veterinary medicine and explain how scientific advances have helped to reveal mysteries of the past. We will discuss the evolution of new pathogens, whilst also considering the understanding of certain diseases as merely a new way of looking at old information.

Judith attended LIYSF 1985 and graduated with a degree in Veterinary Science (Bristol) in 1990. Judith worked as a veterinary surgeon until 1998. She obtained a Post Graduate Diploma in Education (UCD)1998, set up Diploma in Veterinary Nursing in UCD 2001-2003, teaching Science in Mount Temple Comprehensive School 1998 to present.

Lecture 6

Dr. Erik Szabo
University of Bratislava
LIYSF 2004

Dawn of the Living Chemicals

Where is the line between the non-living and the living? We have come a long way in understanding the living matter in terms of its molecular principles, but what about the reverse? Instead of explaining life in the language we developed for simple molecules, could we investigate the world of basic chemicals for features characteristic of the living? We will look at chemical reactions, which are relatively simple, yet show spectacularly counter-intuitive behaviour, spontaneously turning chaotic motion of individual particles into regular patterns of ordered collective activity. And we will see that similar seeds of life-like phenomena may be hiding all around us. Could they be the key for opening the right doors in the fields of origins of life, search for extra-terrestrial life or designing synthetic living structures?

Erik attended LIYSF 2004 and he is a specialist in dynamics of complex chemical reactions and chemical self-organization. He received his PhD. in Physical Chemistry in 2012 from Comenius University in Bratislava, Slovakia, where he now continues his work as an Assistant Professor. In 2013 he accepted an offer from Harvard University, and as a Postdoctoral Fellow collaborated on applications of oscillating chemical reactions for Biologically-Inspired Chemically-Operated Synthetic Systems, one of the projects of Harvard's Origins of Life Initiative.

Lecture 7

Andrew Davies
TraceTag International
LIYSF 1985

Alternate Uses for DNA

This lecture will give a brief outline of some of the more unusual and alternative uses for DNA outside of the traditional medical and pharmaceutical applications. DNA being a wonderfully adaptive chemical structure with some unique properties has some surprising uses outside of what scientists would generally think about. Within this lecture we will cover uses in anti-theft, anti-pollution, anti-poaching; with uses in the oil industry, the banking industry and personal protection, with an insight into the technical backgrounds and techniques that underpin them all.

Andy attended LIYSF 1985 and graduated from the University of Wolverhampton with a BSc.(Hons.) in Applied Biology (Biotechnology and Genetics). Andy is currently Head of Technical services (Worldwide), TraceTag International. He served as scientific officer on genome analysis at Imperial Cancer Research Fund 1992-1993 and senior scientific officer at High Technology Equipment Park 1995-2001 and at the Institute for Reproductive and Developmental Biology, Imperial College London 2001-2003. He has also published an article in the Journal of Pathology about the comparison of the genetic pathways involved in the pathogenesis of three types of colorectal cancer, plus in excess of 100 acknowledgements.

Lecture 8

Stacy Williams
HSBC
LIYSF 1990

Being a Scientist in the Financial Markets

Scientists from a broad range of disciplines are an increasingly important force in the world of finance. The analysis of financial markets was once the preserve of economists but those with a scientific background have much to bring.

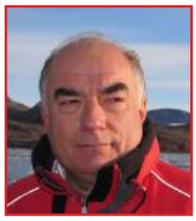
Global markets behave as a single, interdependent, highly complex system and the methods developed by scientists and engineers to model physical systems can be employed. In this seminar, we look at how complex systems techniques are used to gain deep insights into financial markets and how they can be applied to make better and more profitable investment decisions.

Stacy attended LIYSF 1990. He is head of FX Quantitative Strategy at HSBC. He is responsible for quantitative research and the development of novel mathematical techniques in finance. Stacy also supervises doctoral research in collaboration with the University of Oxford Centre for Industrial and Applied Mathematics (OCIAM).

Friday 31st July - Specialist Lectures

10.00hrs - Sir Alexander Fleming and Skempton Building

Lecture 1



Dr. Simon Boxall
University of Southampton

The Environmental Scientist and the Public; Media Mediacy

Mediacy: The quality of being an indirect or intermediate agency. Scientists have a role to investigate key issues relating to our environment and how we interact with it, in an impartial, accurate and informed way. We are becoming well acquainted with key issues such as climate change and ocean pollution, but there have been growing events where the environment impacts on the public, from tsunamis to planes lost at sea, where there is a poor understanding of the power of nature, and an over expectation of the science community's ability to protect the wider populous. This understanding of the environment is not managed by peer review papers, the normal conduit for science information, but by the media. As the mediator between science understanding and that of the public, the stories are often changed for political benefit or to soften the harsh reality of the planet we inhabit.

Simon is an oceanographer and the senior tutor in Ocean and Earth Science at the University of Southampton. He has worked on a wide range of science topics from marine oil spills to ice melt in the Arctic and has heled develop a number of ocean measurement systems and HF Radars. He has appeared in over 100 documentaries for the BBC, C4, Discovery and National Geographic and well as over 1000 news appearances on TV and radio, covering a range of marine science issues.

Lecture 2

Professor Graziella Branduardi-Raymont
University College London

Space Astronomy and the Exotic Universe

Scientists in virtually all branches of astronomy make use of instruments in space to learn more about the Universe. This lecture focuses on x-ray and gamma-ray astronomy, explains the basics of how observations are carried out in space and describes some of the recent results from space observatories built by the European Space Agency (ESA) and NASA.

Cosmic X-ray and gamma-ray sources are some of the most energetic, violent and exotic objects in the Universe: the densest stars, around which energy production is more efficient than in nuclear reactors, the hot debris of the explosive death of stars; streams of charged particles precipitating in the powerful magnetic fields of planets, giving rise to bright x-ray aurorae; the still mysterious ways black holes are born in mighty bursts of gamma-rays; they all provide us with clues about the origin and, ultimately, the fate of our Universe.

Graziella has been fascinated by astronomy and space research since childhood. After a degree in Physics at the University of Milano, Italy, and a PhD in x-ray Astronomy at University College London (UCL), she worked at the Center for Astrophysics, Harvard University, USA and then returned to UCL Mullard Space Science Laboratory (MSSL) where she has been based ever since.

Lecture 3

Ahmed Essam Aly
EHA / FAST

Hydrogen Solutions

Hydrogen is the most abundant element in the universe. And when you burn it or use it to produce electricity, the only waste product is water. Why we are not using this technology now? Why we do not use electricity produced by hydrogen fuel cells and drive hydrogen cars? We have to consider that all technologies need time and resources to be developed and adapted. Furthermore, we have to consider the fact that oil and gas came first and around them the economies and infrastructure were built. Fuel cells and hydrogen have been around for decades and today we can see and use fuel cells and hydrogen in different applications in Europe, USA and Japan. In this session, we will learn more about fuel cell and hydrogen technology and we will explore the current uses of the fuel cells and hydrogen technologies.

Ahmed Essam Aly gained his master degree (2013) in Environmental Engineering from Politecnico di Milano (Italy). Previously he obtained his BSc in civil engineering from Ain Shams University (Egypt) followed by post-graduate studies in Project Management at American University of Cairo. Currently, he is enrolled in Hydrogen Safety Engineering Master Programme at the University of Ulster. He is a member of Italian Hydrogen and Fuel Cell Association. He is working as a communication manager at European Hydrogen Association and a project manager for EU projects at FAST- Federation of the Scientific and Technical Associations, Milan, Italy.

Lecture 4

Professor Lesley Cohen
Imperial College London

Superconductivity and Magnetism

Quantum mechanics underlies our understanding of superconductivity and magnetism. This lecture will provide an introduction to the world of superconductivity, how it was first discovered and the mechanisms that were understood to be responsible for its remarkable properties as well as some of its current uses and current questions which lead the research directions in superconductivity today. This lecture will also discuss magnetism and how magnetic solid state refrigeration describing the properties of the materials that underpin this technology.

Professor Lesley Cohen is a professor of solid state physics at Imperial College London studying the fundamental behaviour of materials and devices with unusual electronic, optical, superconducting or magnetic properties for use in hybrid form to create highly sensitive nanosensors, superconducting spintronics and solid state efficient and environmentally friendly magnetic refrigeration. Over a number of years her group has developed a suite of characterisation tools that have enabled unique insight into the behaviour of materials at low temperatures and high magnetic fields. Overall, she has published over 330 journal publications in her areas of interest.

Friday 31st July - Specialist Lectures

10.00hrs - Sir Alexander Fleming and Skempton Building

Lecture 5

Dr. Rocio Diaz-Chavez
Imperial College London

Sustainability Assessment of Bioenergy Projects

Renewed interest in biofuels has been motivated by different concerns such as high oil prices, energy security and the effects of climatechange. Though the use of biomass has many arguments in favour, the possible negative social and environmental implications obscure these positive possibilities.

To guarantee sustainability different mechanisms and tools need to be considered. The topics covered in the session will include; 1. How to assess the main sustainability issues addressed in the use of biomass resources for biofuels production 2. How bioenergy crops could contribute to improve agriculture, foster rural development and help improve local conditions in developing countries and 3. Environmental issues of bioenergy crops production.

Dr. Rocio Diaz-Chavez is a Research Fellow at the Centre for Environmental Policy of Imperial College London and MSc tutor for the Distance learning MSc of the Centre for Development, Environment and Policy at the School of Oriental and Asian Studies.

Lecture 6

Dr. Lisa Knoll
University College London

Social Brain Development in Adolescence

Adolescence is an important transition time between childhood and adulthood, during which individuals develop their identity and improve the skills necessary to start living an independent life. Several structural and functional MRI studies have shown that adolescence is also a time of extended brain development, during which the brain appears to be highly sensitive to external influences. The lecture will address social and affective development in adolescence from a neurobiological perspective and discuss neurocognitive models of adolescence as well as why adolescence might be a time of heightened sensitivity to social influence.

Lisa's research interest is in the field of developmental cognitive neuroscience and particularly specialised in neuroimaging and behavioural studies of social cognition and language development. During her PhD at the Max Planck Institute for Human Cognitive and Brain Sciences in Leipzig, Germany, she studied the underlying brain mechanisms and structures involved in syntactic processes in the developing brain of preschool children. As a postdoctoral researcher at the Institute of Cognitive Neuroscience at UCL, her research focuses on sensitive periods for learning and the development of social cognition in the typically developing adolescent brain.

Lecture 7

Dr. Samir Nuseibeh
London Metropolitan University

The Impact of Engineered Nanomaterials on Human Health: Is History in Danger of Repeating Itself?"

Engineered nanoparticles or nanomaterials can be found in all kinds of consumer products ranging from sunscreen, to mobile phones, to bicycles. Thanks to their extremely small size, they offer a variety of beneficial properties which enhance the performance of the products we buy. But are they safe to use? How do they interact with cells and biological materials? The truth is, there are an awful lot of unknowns. However, what we do know is that materials with similar properties - such as asbestos - have proven to be unsafe for human interaction. So, is history in danger of repeating itself? This lecture attempts to explore whether or not we are facing another, potential human health disaster.

Samir is a Senior Lecturer in Pharmacology at London Metropolitan University. He graduated from the University of Leeds in 2002, then went on to obtain his PhD in respiratory pharmacology from Imperial College London in 2007. After completing his PhD, Samir spent two years as a postdoctoral researcher at University College London looking at molecular mechanisms associated with chemo- and radiotherapy insensitivity in cancer. He then returned to the field of respiratory medicine and spent another three years at Imperial College London, investigating how engineered nanoparticles interact with biological systems. He continues to research along this theme.

Lecture 8

Professor David Warhurst
London School of Hygiene and Tropical Medicine

Drug-Resistance Problems in Malaria Control, and New Approaches

This lecture will look to consider the role of a variety of drugs in attacking different stages of the life cycle of Plasmodium in man and in the mosquito vector. We will also consider how to pinpoint organelles within the parasite on which particular drugs are focussed, the digestive vacuole, the mitochondrion and the apicoplast, which is important as a target for antibiotics in suppressive prophylaxis (doxycycline). Look to understand mechanisms of resistance by non-synonymous single nucleotide polymorphism, SNP, and copy number variation, CNV. Finally an overall drug strategy is needed which takes into account developing resistance to a range of therapies which has taken place over recent years.

Professor David Warhurst obtained his degree in Zoology (with Botany and Geology) at the University of Leicester in 1960, and also gained his PhD on Parasites of the Cockroach. From September 1963 to 1968 he worked as a WHO postdoctoral post on Chloroquine-resistance in Malaria with Dr Frank Hawking at NIMR Mill Hill, and then moved to Liverpool until 1975 with Prof Wallace Peters on experimental malaria Chemotherapy. He then took up a Senior lectureship with the London School of Hygiene and Tropical Medicine, where he continued teaching and researching in parasitology until retiring as a professor and being given emeritus status in 2003. His main output has been on experimental malaria chemotherapy and drug-resistance, and is still active in research.

Monday 3rd August - Specialist Lectures

10.00hrs - Sir Alexander Fleming and Skempton Building

Lecture 1

Hadyn Parry

Oxitec

Using Genetic Engineering to Combat Disease-Carrying Mosquitoes

In a single year, there are over 500,000 deaths from malaria and an estimated 390 million cases of dengue fever worldwide. As globalisation and urbanisation have continued, we seem to be losing the battle against disease carrying mosquitoes. Mosquitoes hitch-hike in trucks, ships and planes and not only invade new countries but they also carry new diseases; Chikungunya swept through the Caribbean last year with an estimated 1 million cases. Hadyn will present a new solution: using genetically engineered male mosquitos to control the species that spread disease. Hadyn will describe not only the scientific and technical aspects of this approach but will also outline some of the business challenges of a small company developing such an innovative approach to combat the world's most dangerous animal, the mosquito.

Hadyn Parry is the Chief Executive of Oxitec, an Oxfordshire based company pioneering the use of genetic engineering. Hadyn has an extensive background in the Life Science sector. During his career at ICI Crop Protection/Zeneca/Syngenta he held positions; General Manager of Zeneca Plant Sciences, European Business Director and Global Head of R&D for Advanta, one of the world's largest seed companies. Hadyn was also Chairman of Help for Heroes (2007-2013), a charity founded in 2007 to support wounded British soldiers.

Lecture 2

Dr. Susan Canney

University of Oxford

Mali Elephant Project

This lecture will use examples from Africa, Asia and Europe to examine the role of science in conservation, particularly how the use of remote sensing and spatial technologies allows a deeper understanding of real world conservation problems, the identification of priorities, the integration of different disciplines and the design of creative solutions for balancing the needs of humans and nature.

Susan Canney is the director of the Mali Elephant Project, having worked on a variety of nature conservation projects around the world, and at the Green College Centre for Environmental Policy & Understanding. She is a research associate of the Department of Zoology, Oxford University, and has co-authored a recently published book on "Conservation" for Cambridge University Press, that takes a global perspective to bring conservation to the heart of sustainability and environmental policy.

Lecture 3

Dr. Jason Chapman

Rothamsted Research

Chasing the High Fliers: Radar Studies of Migration in Moths and Butterflies

Billions of insects migrate between winter and summer ranges to take advantage of seasonally-available breeding resources. To travel the distances required (100s km), many insects rely on wind assistance. Given their small size and flying height, studying insect migrants is extremely challenging and thus until recently we knew little about their in-flight behaviours and migration patterns. This lecture will feature Dr Chapman's studies of the migration of butterflies and moths from specialised entomological radars. Radar observations demonstrate that migrating insects select the fastest and most favourably-directed winds, resulting in them achieving the same travel speeds and directions as songbirds capable of flying three times faster. The migration strategies employed by these species explain how small, short-lived and relatively slow-flying organisms are able to migrate great distances in seasonally-beneficial directions, and demonstrate that these migrations are highly adaptive.

After completing a PhD in entomology and a post-doctoral research position in insect-virus interactions at the University of Southampton, Jason moved to Rothamsted Research, an agricultural research institute based in Hertfordshire. For more than 15 years Jason has used entomological radars to study the flight behaviours and migration strategies of a range of insects of agricultural significance, especially pest moths and natural enemies (ladybirds, carabids, hoverflies and lacewings).

Lecture 4

Professor Jameel Inal

London Metropolitan University

Microvesicles Research in Biomedicine: A Sample of Projects at CMIRC since 2009

Microvesicles (MVs) are released constitutively and upon stimulation directly from the cell surface, whilst exosomes have an endocytic origin, being released upon fusion of multivesicular bodies (carrying exosomes) with the plasma membrane. All EMVs (exosomes and MVs) carry miRNA, mRNA, lncRNA and proteins between cells. Researchers at the Cellular and Molecular Immunology Research Centre (CMIRC) are interested in the various roles that EMVs, as agents of intercellular communication, play in cancer and infectious disease, and are also beginning to look at their use as therapeutic vehicles. Preliminary data will then be presented on the therapeutic inhibition of MV release in prostate cancer and to end, future perspectives will be considered.

After a degree in Microbiology from King's College, London Jameel worked in vaccine development at the Centre for Applied Microbiology and Research at Porton Down. He had two W.H.O. fellowships at the London School of Hygiene and Tropical Medicine and then brief stints at the Ludwig Institute for Cancer Research and the MRC Immunochemistry Unit at the University of Oxford. He worked for 5 years in the Department of Biomedicine at the University Hospital in Basel, Switzerland. In 2009 Jameel founded the Cellular and Molecular Immunology Research Centre at London Met where he has been a professor for eight years.

Monday 3rd August - Specialist Lectures

10.00hrs - Sir Alexander Fleming and Skempton Building

Lecture 5

Dr. Simon Kyle
The University of Manchester

Waking Up to the Importance of Sleep

In this talk Dr Kyle will give an introduction to the fascinating world of sleep research and outline the importance of sleep for health and wellbeing.

Dr Kyle is a Lecturer in the School of Psychological Sciences at the University of Manchester. He holds a Master of Arts (1st Class) degree in Psychology and PhD in Psychological Medicine (Sleep Disorders) from the University of Glasgow. He has particular research interests in the aetiology and treatment of chronic insomnia, and the impact of sleep and circadian rhythm disturbance in psychiatric and medical illness.

Lecture 6

Emilia Melville
University of Surrey

Collaborative Research on the Role of Community and Local Energy in Sustainable Energy Transitions

Emilia will talk about the experience of crossing disciplines from engineering to social science, of working at the interface between research and practice, and the methodological approach she is taking to translating academic theoretical frameworks to be meaningful in the 'real world'. You will also learn about the concepts at the heart of Emilia's research in a fun and interactive way. Prepare to learn something about who has power in the UK energy system, what kinds of changes are needed to create a transition to a sustainable system and who can make them, and to go away with some new concepts for thinking about governance systems.

Emilia is a research engineer and engineering doctorate (EngD) candidate at the University of Surrey and BuroHappold Engineering. She is exploring the contribution that could be made by community and local authority energy initiatives in supporting the transition of the UK energy system to low carbon. Prior to starting this research, Emilia worked as a sustainability consultant in BuroHappold, and volunteered as a founding director of the Bristol Energy Co-operative. Emilia studied Engineering at the University of Cambridge, and was a member of the UK Youth Delegation to the international climate talks in Copenhagen in 2009.

Lecture 7

Dr. Mike Minett
University of Cambridge

Pain Genes: Exploring the Mechanisms of Pain Transduction

Over one-third of the world's population suffers from persistent or recurrent pain, costing the American public alone approximately £100 billion each year in health care, compensation and litigation. These pains can last for months or years and reduce the sufferer's quality of life immensely and can lead to secondary symptoms such as anxiety and depression. Our ability to treat these chronic pain states is currently limited, with treatment options that commonly trigger side effects.

Mendelian heritable pain disorders have provided insights into human pain mechanisms and suggested new analgesic drug targets. By focusing on these individual genes it is possible to dissect the mechanisms that contribute to chronic pain. Specifically targeting drugs against these key gene products may enable us to provide pain relief without affecting normal physiological functions.

Mike graduated in 2007 with a degree in Biomedical Science from the University of East Anglia, Norwich. He then worked for a Cambridge based biotechnology company. Mike completed his Ph.D. in Molecular Neurobiology with Prof. John Wood FRS as his mentor at University College London in 2013. He is currently a research associate at the University of Cambridge.

Lecture 8

Dr. Long Seng To
University College London

Power for Good: Renewable Energy Engineering & Poverty Reduction

This lecture will cover Long Seng's journey into the field of renewable energy and development work as an engineer in Africa and the Asia Pacific region. The lecture will incorporate some reflections on the challenges and rewards of working in international development, the role of engineering in society and the importance of local capacity.

Long Seng is a Research Fellow at the Department of Science, Technology, Engineering and Public Policy, University College London. She is working on the Agro-Industries and Clean Energy in Africa (AGRICEN) project which aims to understand the role that agro-industries can play in providing energy to rural communities in Ethiopia, Kenya, Uganda and Malawi. She has also conducted research on renewable energy with remote communities in China, Australia, Nicaragua and Nepal. Long Seng holds a BEng in Photovoltaics and Solar Energy, a BA in History and Philosophy of Science and a PhD from the University of New South Wales.

Scientific Visits

Friday 24th July

Visits to Research & Scientific Establishments in London

24.A The Anaesthesia Heritage Centre

Founded from a donation by A Charles King, the collection encompasses the entire history of anaesthesia, from Morton's demonstration of ether inhalation in 1846 to modern anaesthetic machines and appliances still in use today.

24.B BDA Dental Museum

The Museum has the largest collection of dental heritage in the UK. It houses over 20,000 objects and images telling the story of how dentistry has developed from a marketplace spectacle to the complex procedures and treatment of today. From 19th century dental floss to toothache cures, clockwork drills to toothpaste adverts.

24.C Imperial College London, Department of Chemical Engineering

See the laboratories, pilot plant and computing facilities of one of the UK's largest departments of its kind.

24.D Imperial College London, Dyson School of Design Engineering

The Design Engineering School aims to teach the application of engineering approaches in the realization of activities that began with a design concept or proposal.

24.E Imperial College London, Department of Life Sciences

One of the largest life science groups in Europe, research of full breadth of modern life science activity including, Molecular Biosciences, Molecular Biosciences; Cell & Molecular Biology and Ecology & Evolution.

24.F Imperial College London, Department of Materials: Biomaterials in Regenerative Medicine

Research into biomaterials for tissue engineering and regenerative medicine; and bio-nanotechnology for nanostructures and create Nano-biomaterials.

24.G Imperial College London, Department of Mechanical Engineering, Energies Futures Lab

The Energy Futures Lab is the focal point for the dynamic and diverse multi-disciplinary energy research across Imperial College London. Enabling funding, training, and global partnerships for our researchers and students.

24.H Jodrell Laboratory at the Royal Botanic Gardens, Kew

World-famous centre for botanical research and study; includes a visit to the Jodrell Laboratory.

24.I London Metropolitan University, Faculty of Life Sciences and Computing - Sports Science

Sports courses at London Met are led a by a team of passionate and experienced lecturers with varied experience within sports teams, private practice and research environments. Teaching and learning is built around a mix of practical and theoretical sessions in custom built facilities.

24.J The Old Operating Theatre and Herb Garret

Original Operating Theatre dating from 1821, with original instruments; find out about surgery before anaesthesia and antiseptics.

24.K Queen Mary University, School of Physics and Astronomy

Research in particle physics in the School is concentrated in the Particle Physics Research Centre. Members play leading roles in major international experiments including ATLAS (operating at the CERN Large Hadron Collider), T2K and SNO+, as well as hosting a major component of GridPP, the Computing Grid that provides the computing resources for the LHC.

24.L Royal Veterinary College

The Royal Veterinary College is the largest and longest-established vet school in the English-speaking world and is a college of the University of London.

24.M The Tate - Conservation Department

Conservation scientists investigate artists' materials and techniques and study parts of the collection that are both difficult to conserve and poorly understood in terms of construction and materials. They also develop and provide analysis of materials to support conservation and collection-related activities

24.N University College London, Institute of Neurology

The Faculty of Brain Sciences brings together expertise at the forefront of neurology, ophthalmology, audiology, psychology and language sciences, cognitive neuroscience and mental health sciences.

24.O University College London Hospital Trust - Haematology and Blood Transfusion Department, Health Service Laboratories (HSL)

The laboratory issues approximately 50,000 blood and plasma products per annum, supporting the large Haemato-Oncology Department, a tertiary referral centre for the north west London area and the large Sickle Cell and Thalassaemia Unit which transfuses more patients than any other Trust in the UK.

24.P University College London, Jill Dando Institute of Security and Crime Science

Visit the first Institute in the world devoted to Crime Science. Research is concentrated on new ways to cut crime and increase security.

24.Q London Wetland Centre

Over 100 acres of wetland sites, with extensive populations of wild birds, plants and insects. Talk to the experts about biodiversity and conservation.

Tuesday 28th July

National Visit to Research & Scientific Establishments

28.A AFC Energy

AFC Energy is now the world's leading developer of low-cost alkaline fuel cell technology. Focused on large-scale industrial applications, the technology is fully-scalable to provide clean electricity on-demand. The fuel cell has the potential to be the catalyst which transforms the way in which industries of today produce energy for tomorrow.

28.B Airbus UK

Core activities at Filton include the design, engineering and support for Airbus wings, fuel systems and landing gear integration.

28.C Cranfield University

Cranfield University (a wholly postgraduate institution) has a global reputation for inspirational teaching and research, industrial-scale facilities and superior links with industry and commerce. From unique cabin evacuation research to finding life on Mars, from a frost blanket for racecourses to zero-emission cars, and from the next generation of anti-landmine devices to a new blood glucose monitor, Cranfield's focus is squarely on the application of its research.

28.D The John Innes Centre, Norwich Research Park

An independent, international centre of excellence in plant science and microbiology working to generate knowledge of plants and microbes through innovative research to benefit agriculture, the environment, human health and well-being.

28.E University of Leicester Space Research Centre & National Space Centre

Students will learn about earth observation science and the latest technology being developed at Leicester for future Mars Sample Return missions. At the National Space Centre, students will tour the exhibit and attend a Masterclass in space-related physics.

28.F The National Oceanography Centre & University of Southampton's School of Ocean and Earth Science

NOCS is the national focus for oceanography in the UK with a remit to achieve scientific excellence in its own right as one of the world's top five oceanographic research institutions.

28.G Meggitt Plc Aircraft Braking Systems Facility

The visit to Meggitt will showcase the company's capabilities in designing and manufacturing aircraft braking systems. Aircraft wheels, carbon-fibre brakes and high-technology anti-skid control systems are developed for safe, reliable performance in a very harsh environment.

28.H The National Physical Laboratory

UK's principal facility in measurement and materials science. Visit state of the art facilities ensuring accuracy, consistency and innovation in physical measurement.

28.I Rolls Royce

Visit to see Rolls-Royce, from its beginnings to present day product range. See the largest collection of aero engines in the country, ranging from World War 1 era piston engines, the famous Merlin, right up to modern day jet engines.

28.J The Rothamsted Research Centre

The longest running agricultural research station in the world, providing cutting-edge science and innovation, in areas of crop productivity and quality and sustainable solutions for food and energy production.

28.K Syngenta's International Research Centre at Jealott's Hill

Syngenta is the world's largest agribusiness with 26,000 employees in 90 countries. With an 80 year tradition of innovation, Jealott's Hill is the company's largest site for new agrochemical R&D and product support. Key activities at Jealott's Hill include research into discovery of new active ingredients, new formulation technologies, technical support of our product range and Seeds research.

28.L University College London, Mullard Space Science Laboratory

Exploiting the capabilities of rockets and spacecraft as platforms for scientific instruments it strives to understand our physical environment and our place in the Universe.

28.M University of Kent, Electronics Laboratory

Design and research in electronics and digital multimedia equipment.

28.N University of Warwick, Electrochemistry & Interfaces/ Electron Microscopy Departmen

The application of electrochemistry to the understanding of fundamental and industrially significant interfacial chemical processes at the micro to nanoscale.

28.O British Geological Survey

The British Geological Survey is a world-leading geological survey and the UK's premier provider of objective and authoritative geoscientific data. It focuses on public-good science for government, and research to understand earth and environmental processes.

Scientific Visits

Thursday 30th July

Day visits to Oxford & Cambridge University Research Departments & Scientific Establishments

30.A University of Cambridge, Earth Sciences Department

From geophysics and applied mathematics, geochemistry and sedimentology, petrology and volcanism, palaeontology and evolutionary biology, to the physics and fundamental properties of materials.

30.B University of Cambridge, Centre for Mathematical Sciences

The Centre for Mathematical Sciences (CMS) is the name given to the physical site and buildings occupied by the Faculty of Mathematics, and its constituent departments the Department of Pure Mathematics & Mathematical Statistics (DPMMS) and the Department of Applied Mathematics & Theoretical Physics (DAMTP) , The Isaac Newton Institute and The Betty and Gordon Moore Library.

30.C University of Cambridge, MRC Laboratory of Molecular Biology

The MRC Laboratory of Molecular Biology (LMB) is a world-class research laboratory, dedicated to understanding important biological processes at the molecular level - with the goal of using this knowledge to tackle major problems in human health and disease.

30.D University of Cambridge. NIHR Cambridge Biomedical Research Centre and Cambridge Science Centre

A partnership between Cambridge University Hospitals Foundation Trust and the University of Cambridge. The partnership between the hospital and the university creates an environment where internationally outstanding biomedical and clinical scientists work alongside clinical practitioners to achieve translation of research for the benefit of patients. The Cambridge Cancer Centre is a dynamic collaboration of researchers, clinicians, and the pharmaceutical and biotech industries based in the Cambridge area. We combine world-class science and technology with excellent patient care to pioneer new ways to prevent, detect and treat cancer.

30.E University of Cambridge, Scott Polar Research Institute

The Scott Polar Research Institute was founded in 1920, as a memorial to Captain Robert Falcon Scott, RN, and his four companions, who died returning from the South Pole in 1912 and is the oldest research institute of its kind.

30.F The Wellcome Trust Sanger Institute

A leader in the Human Genome Project, this institute is focused on understanding the role of genetics in health and disease with research into connection between genetics and infectious disease.

30.G Culham Centre for Fusion Energy

The UK centre for magnetic confinement fusion research and the home of the major European fusion experiment JET. It has a high technology incubator, Culham Innovation Centre and an technology transfer programme.

30.H HR Wallingford

HR Wallingford research covers all things aquatic, from the headwaters of river catchments out to the deep sea. They carry out research to provide specialist solutions for industry. See work in progress in the wave basins, wave flumes and the Fast Flow Facility and step into the UK Ship Simulation Centre.

30.I University of Oxford, Botanic Gardens, Museum of Natural History

Houses the University's zoological, entomological and geological specimens. Among its famous features are a dodo, the first dinosaur to be scientifically described, and the swifts in the tower. Founded in 1860 as the centre for scientific study at the University of Oxford, the Museum of Natural History now holds the University's internationally significant collections of geological and zoological specimens.

30.J Oxford Brookes University, Department of Mechanical Engineering

This department combines technical expertise with creativity and imagination with modern, state-of-the-art workshops, laboratories and computer facilities.

30.K University of Oxford, NIHR Biomedical Research Centre

NIHR drives progress on innovation and translational research in biomedicine into NHS practice and clinical research working to improve the understanding of the nervous system in health and disease.

30.L University of Oxford - Nuffield Department of Clinical Neurosciences

The Nuffield Department of Clinical Neurosciences (NDCN) provides a focus for world-leading translational neuroscience allowing the swift transfer of basic biomedical findings to the clinical setting and the delivery of evidence-based therapies for the benefit of society and the economy.

30.M University of Oxford, Pitt Rivers Museum

The Pitt Rivers Museum displays the archaeological and anthropological collections of the University of Oxford. The museum was founded in 1884 by Lt-General Augustus Pitt Rivers, who donated his collection to the University of Oxford.

Thursday 31st July

Visits to Science & Natural History Museums

Natural History Museum

NHM's vision is to advance knowledge of the natural world, inspiring better care ofour planet with the mission to maintain and develop collections and use them topromote the discovery, understanding, responsible use and enjoyment of the naturalworld. The 8-storey, landmark Darwin Centre and cocoon structure is the mostsignificant development at the Natural History Museum since it moved to SouthKensington in 1881. This dramatic new public space and state-of-the-art scientificand collections facility opens its doors to reveal a whole new Museum experience for visitors.

Science Museum

The Science Museum has over 300,000 objects in its care, with particular strengths in the history of western science, technology and medicine since 1700. It has been uniquely placed to acquire objects recording the Industrial Revolution and nowholds unrivalled collections in this area. Medical artefacts from all periods and cultures also form an important part of its holdings.

Friday 24th July

Science Bazaar - Student Projects Evening

All students are invited to take part in the Science Forum Bazaar, either presenting a project or visiting the stands and asking questions. The Science Bazaar is an exciting opportunity to present an independent research project in a non-competitive environment with fellow students from all over the world and our science experts.

LIYSF is very privileged to have the support and help of a team of science experts who will be asking questions at the stands and giving feedback.

Science Bazaar Judges

Head Judge

Professor Richard O'Kennedy
Scientific Director, Biomedical Diagnostics Institute
Dublin City University

Dr. Daniel Amund
Academic Mentor
London Metropolitan University

Dr. Michael Londesborough
Researcher
Czech Academy of Sciences

Joanna Kent
Capital Physics Coach
Institute of Physics

Dr. Daniela Peukert
Science Policy Adviser
Royal Society of Biology

Dr. Tim Slingsby
Advisor for Public Engagement in Science
British Council

Annette Smith
Consultant
science:education: governance

Susan Thompson
Education Coordinator
Royal Society of Chemistry

Clare Thomson
Consultant
Gender and Education

FameLab LIYSF

10 projects will be chosen to be presented on Saturday 25th July in the FameLab LIYSF evening. This evening will provide an introduction to FameLab and how you can join in the future with some former FameLab winners presenting. FameLab is a communications competition designed to engage and entertain by breaking down science, technology and engineering concepts into three minute presentations - www.famelab.org

Social Programme

There is an active social calendar with events designed to enable those from around the world to learn about different cultures.

Thurs 23rd July	20.30hrs – 23.30hrs	Welcome Party, Chelsea Old Town Hall
Fri 24th	18.30hrs – 22.00hrs	The Science Forum Bazaar - Student Project Poster Board Evening Imperial College Atrium / Mechanical Engineering Foyer
Sat 25th	20.00hrs – 22.00hrs	FameLab LIYSF - Student Topics - SAF Lecture Theatre
Mon 27th	19.30hrs – 22.00hrs	Great Crossword Treasure Hunt. Queen's Lawn and surrounding South Kensington
Thurs 30th	19.30hrs – 22.00hrs	Rehearsals, Ethos Sports Hall
Fri 31st	20.30hrs – 22.00hrs	International Cabaret – Cultural Showcase Performance Evening Chelsea Old Town Hall
Sat 1st Aug	15.00hrs – 17.00hrs	LIYSF Olympics. Ethos Sports Hall
Sun 2nd	20.00hrs – 22.00hrs	Traditions of Home – Sharing World Customs and Fashion Chelsea Old Town Hall
Tues 4th	08.00hrs – 23.00hrs	Farewell Party. Chelsea Old Town Hall

Optional Visits

LIYSF offers a varied programme of optional visits. On Thurs 24th July at 17.30hrs tickets will be on sale from LIYSF staff after the plenary lecture demonstration. Please see website for full details.

Sat 25th July	14.00hrs	London Bus Sightseeing Tour
	14.30hrs	London Eye
Sun 26th	09.00hrs – 17.00hrs	Optional visit to Stonehenge & Salisbury
Tues 28th	19.30hrs – 22.30hrs	Optional Theatre night
Sun 2nd Aug	09.00hrs – 16.00hrs	Optional Visit to Hampton Court Palace or the Tower of London
Mon 3rd	14.00hrs	Optional visits to State Rooms at Buckingham Palace
	17.00hrs	London Eye
	19.30hrs – 22.30hrs	Optional Theatre Night

LIYSF Alumni Association

After your time at LIYSF stay connected with us and your new friends in our dedicated, LIYSF exclusive community.

The association is made up of people that are very passionate about the Forum. This association has been formed to help alumni of LIYSF stay in touch. We will be working hard in lots of way to keep the alumni information up to date. We are always looking for past participants that can help in our efforts and encourage you to contact us with any ideas or suggestions and photos from your time at LIYSF.

LIYSF
London International Youth Science Forum

For more information please visit
http://alumni.liysf.org.uk/

Programme Venues

HALLS OF RESIDENCE

Beit Halls of Residence

Imperial College London
Prince Consort Road

Hall Host:
Emmanuel Shofoluwe

Southgate Halls of Residence

Southside Halls of Residence
Prince's Gardens

Metrogate House
Queen's Gate Terrace

Hall Host: Abi Gilbertson

PROGRAMME VENUES

Royal Geographical Society
Kensington Gore

Imperial College London
Sir Alexander Fleming Building

Imperial College London

Chelsea Old Town Hall
King's Road

LIYSF Staff

LIYSF Support Staff

Programme Assistant
Steven Palmer-Jones

Programme Assistant
Dr. Daniel Amund

Media and Communications
Deepesh Patel

LIYSF Student Staff

Chief of Staff
James North
England

Beit Halls of Residence

Hall Host
Emmanuel Shofoluwe
England

Programme Liaison
George Kettle
Australia

Deputy Host
Simran Mohnani
Malta

Chief of Counsellors
Kayleigh Maxwell
Canada

Counsellor
Sophie Healy Thow
Ireland

Counsellor
Guilherme Winter
Brazil

Counsellor
Michael Olafisoye
Nigeria

Counsellor
Christina Protopapa
Cyprus

Counsellor
Ava Robertson
Jamaica

Southgate Halls of Residence

Hall Host
Abi Gilbertson
England

Programme Liaison
Gemma Prunes
Catalonia

Deputy Host
Ndiuwem Essien
Nigeria

Chief of Counsellors
Brody Hannan
Australia

Counsellor
Thomas Mc Mahon
Ireland

Counsellor
Katie Downes
England

Counsellor
Thinesh Pathmaraja
England

Counsellor
Shweta Julka
USA

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Malta

Media Assistant
Charlotte Brew
Australia

Media Assistant
Emer Hickey
Ireland

Partners

SCIENCE IS GREAT
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Tell us why you're coming to LIYSF…
Your story could be read by students worldwide

This year, LIYSF is teaming up with the GREAT campaign and the British Council's Education UK website for international students. With your help, we want to show what's GREAT about studying science in the UK and worldwide.

We want to hear from you!

Email educationukstudent@britishcouncil.org with your name, age, country of origin and a short description (300-600 words) of yourself and why you think Science is GREAT:

- Why do you want to study science?
- What do you want to do with your career?
- Why are you coming to LIYSF and what are you most looking forward to?

We'll select some of the best testimonials for an article on Education UK.

Study science in the UK

Find out more at www.educationuk.org or scan here →

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LIYSF Partners

Arkwright Scholarships Trust

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Supporting Organisations

LIYSF is very proud to have the support across the globe of; National Government Offices, British Council Offices, National and International Science Competitions, Science Organisations, Schools and Universities. We are truly grateful to all organisations for their work in nominating and supporting students to attend, a selection of them are shown here:

Academy of Sciences of Czech Republic	Czech Republic
Akademeia	Poland
Aprosio Science High School Ventimiglia	Italy
Bangkok Patana School	Thailand
Beijing NGO Association for International Exchanges	China
British Council	Taiwan (ROC)
British Council School Madrid	Spain
British School of Brussels	Belgium
Calouste Gulbenkian Foundation	Portugal
Campion College	Jamaica
Cathedral and John Connon School	India
Celia and Glyn Allen	Guernsey
China Association for Science and Technology	China
Clapton Girls' Academy	England
Dublin City University	Ireland
English School	Cyprus
Eskom Expo for Young Scientists	South Africa
Fallibroome Academy	England
Federazione delle associazioni scientifiche e tecniche (FAST)	Italy
Foundation Jeunes Scientifiques Luxembourg (FJSL)	Luxembourg
Global Science Magazine Co	China
GC School of Careers	Cyprus
Institut Teknologi Bandung	Indonesia
International Environment & Sustainability Olympiad (INESPO)	The Netherlands
John Roan School Greenwich	England
Kang Chiao International School	Taiwan (ROC)
Macau Anglican College	China
Memorial University of Newfoundland	Canada
Ministry of Education	Singapore
Campion College	Jamaica
National Student Travel Foundation	Malta
National Youth Science Forum	Australia
Polish Children's Fund	Poland
RED Science and Technology Youth Activities Network	Mexico
Rede POC	Brazil
Research Council of Norway	Norway
Rotary National Science & Technology Forum	New Zealand
Royal Society of New Zealand	New Zealand
Society for Science & the Public	USA
St. Andrew's Scots School	Argentina
Swedish Federation of Young Scientists	Sweden
Swiss Youth in Science	Switzerland
Thomas Hardye School	England
Ullswater Community College	England
Weizmann Institute of Science	Israel
Youth and Science Program	Spain

Acknowledgements

LIYSF offers its thanks to all those who so generously assisted in the planning and preparation of LIYSF 2015 and, in particular, to:

The lecturers and speakers, whose contribution is invaluable.

The universities, industries and research centres for their generosity in hosting visits to their establishments.

The Government departments, schools, colleges, universities, educational groups, science competitions and foundations worldwide, which select and sponsor overseas participation, including: The European Commission, The British Council, Education UK and the GREAT campaign.

Various individuals who provided much appreciated support and advice including; Dr. Daniel Amund, Professor Sir Roy Anderson, Ms Ellie Buchdahl, Mr Ray Lewis, Mr John Needle, Mr Deepesh Patel, Professor David Phillips, Ms Roberta Roggeri, Dr Tim Slingsby, Ms Annette Smith and Sir Colin Terry.

Imperial College London for providing facilities for all main sessions and accommodation, and working with us across the University to integrate all aspects of the College with LIYSF.

The Royal Geographical Society and The Royal Borough of Kensington and Chelsea for providing programme venues.


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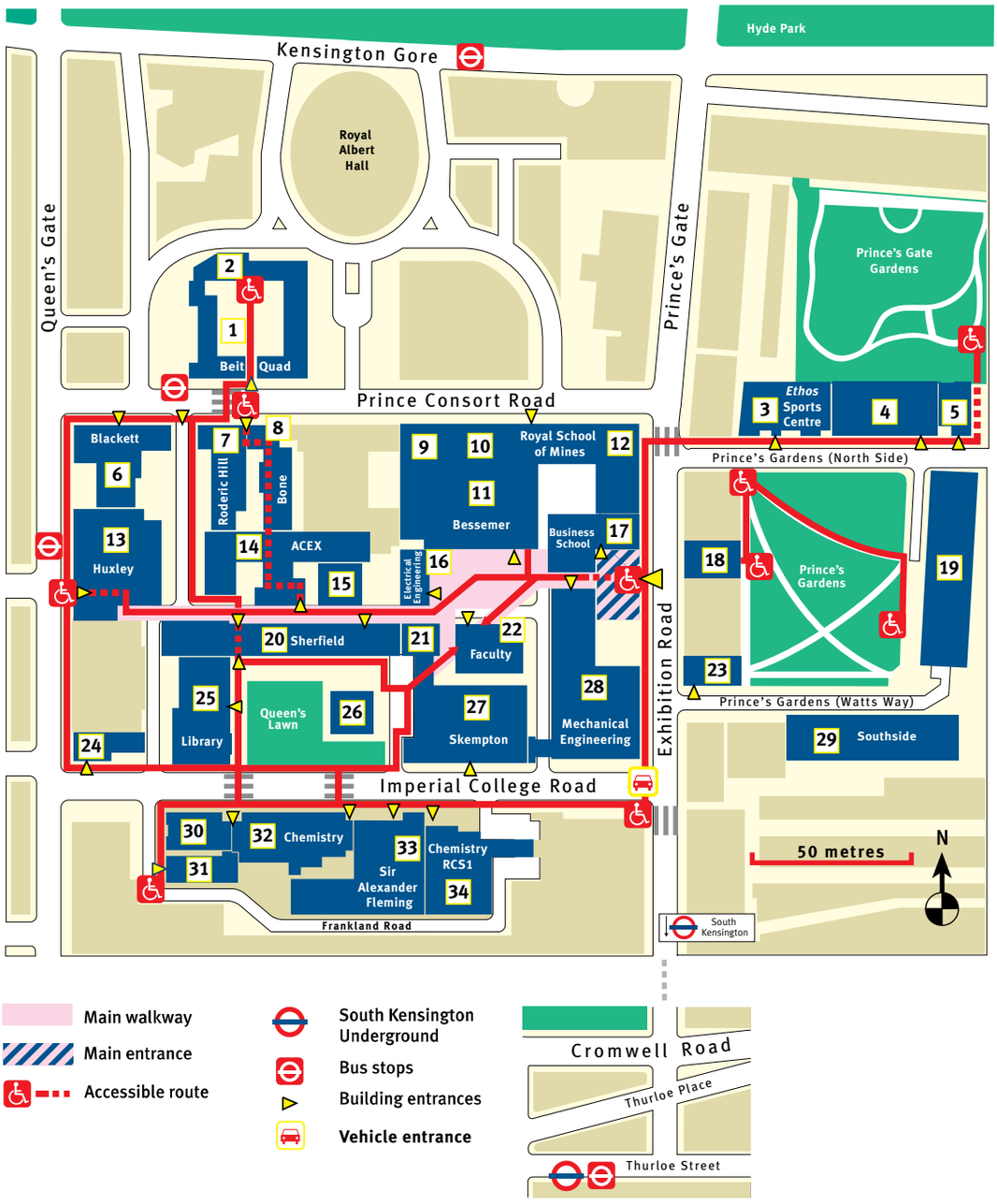
International graduates of British universities significantly improve their career prospects and earning potential. Study in the UK and enjoy the rewards.
Department of Biochemistry
University of Oxford
www.educationuk.org

Notes

Notes

Imperial College London

South Kensington Campus



Buildings where wheelchair access is not possible at this time

1	Beit Quadrangle
2	Imperial College Union
3	*Ethos* Sports Centre
4	Prince's Gdns, North Side Garden Hall
5	Weeks Hall
6	Blackett Laboratory
7	Roderic Hill Building
8	Bone Building
9	Royal School of Mines
10	Aston Webb
11	Bessemer Building
12	Goldsmiths Building
13	Huxley Building
14	ACE Extension
15	William Penney Laboratory
16	Electrical Engineering
17	Business School
18	53 Prince's Gate
19	Eastside
20	Sherfield Building Student Hub Conference Office
21	Grantham Institute for Climate Change
22	Faculty Building
23	58 Prince's Gate
24	170 Queen's Gate
25	Imperial College and Science Museum Libraries
26	Queen's Tower
27	Skempton Building
28	Mechanical Engineering Building
29	Southside
30	Wolfson Building
31	Flowers Building
32	Chemistry Building
33	Sir Alexander Fleming Building
34	Chemistry RCS1