Imperial College London

An overview of Imperial

Adrian Sutton FRS

Imperial College London

100 years of living science

Imperial at a glance

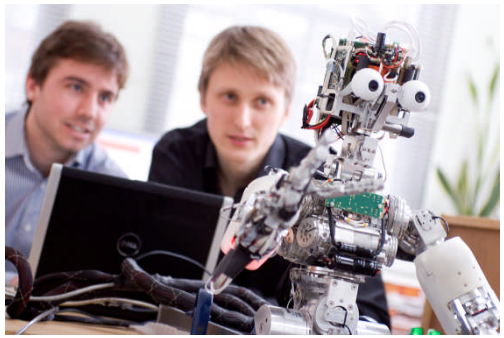
The University's objectives:

- world class scholarship, education and research in science, technology and medicine
- interdisciplinary collaborations
- communicate and share knowledge

Established in 1907

Academic faculties:

- Engineering
- Natural Sciences
- Medicine
- Business School



Imperial College
London

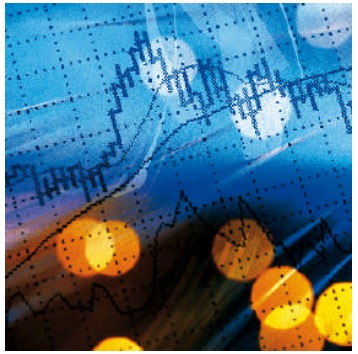
100 years of living science
100

Imperial College

Imperial College London:

World class research and teaching
in science, engineering, medicine and management



"It has been a century of great achievement, and my thanks go to all the people, the staff and the students, whose work over the decades has enabled Prince Albert's vision to flourish" Her Majesty The Queen, 9 July 2007

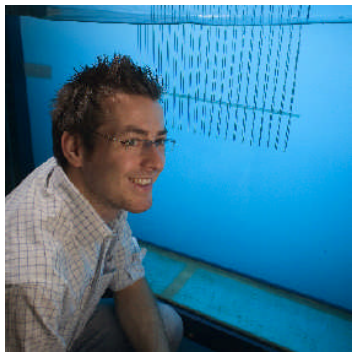
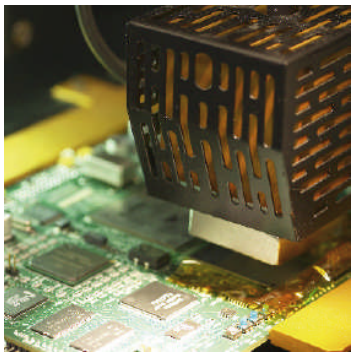
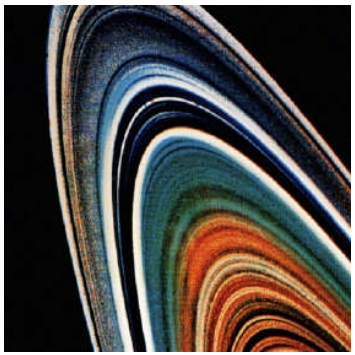
Imperial College
London

100 years of living science
100

Our mission

Imperial College embodies and delivers world class scholarship, education and research in science, engineering medicine and business, with particular regard to their application in industry, commerce and healthcare.

We foster interdisciplinary working internally and collaborate widely externally.

Imperial College London

100 years of living science

Our estate

Six London campuses

- Charing Cross
- Chelsea and Westminster
- Hammersmith
- Royal Brompton
- South Kensington
- St Mary's

Campus in South East England

- Silwood Park, Ascot

Imperial College London

100 years of living science

Our staff

- **3,200** academic and research staff
- **3,100** support staff
- **2,000** honorary staff
- **1,100** academic visitors and visiting researchers

Imperial College London

100 years of living science

Our students

14,000 students

- **8,500** undergraduates
- **2,700** taught postgraduates
- **2,800** research postgraduates

Courses

- **108** undergraduate courses
- **130** postgraduate taught courses
- **5:1** Ratio undergraduate applications to admissions
- **AAA** Average A-level entry grade

Imperial College London

100 years of living science

An international institution

- Students from **126** countries

- Top non-UK countries:
  - **China**
  - Malaysia
  - Greece
  - France
  - Germany
  - Singapore
  - Italy
  - Nigeria
  - Cyprus
  - India

- **48**% Full time students non-UK nationals
- **35**% of staff non-UK nationals

Imperial College London

100 years of living science

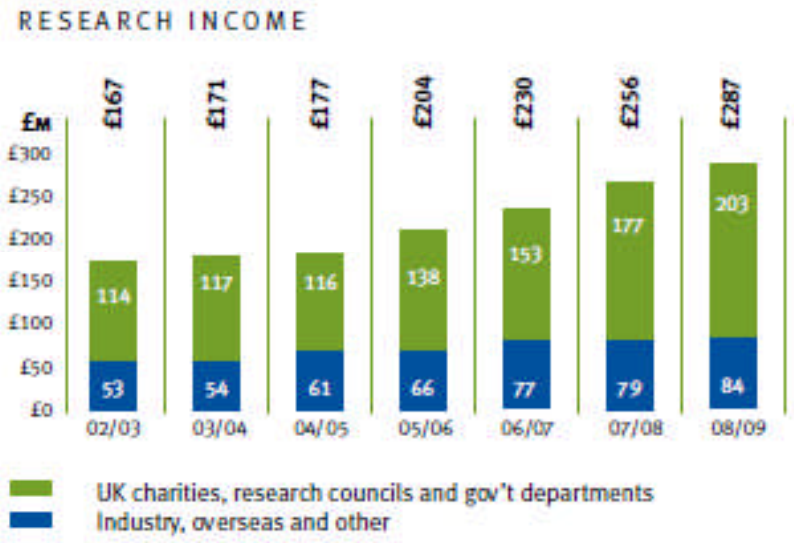
Our financial strengths

£670m Turnover

£81m College capital expenditure

£109m Fees from students

£287m Total research income



(figures from 2008-09)

Imperial College London

100 years of living science

Our standing

Times Higher Education Supplement World University Rankings:

- **3rd** in Europe — **5th** in World — **overall**
- **2nd** in Europe — **6th** in World — **for engineering / information technology**
- **3rd** in Europe — **10th** in World — **for natural sciences**
- **3rd** in Europe — **17th** in World — **for life sciences/biomedicine**

Times Good University Guide 2010

- **3rd** in UK

Sunday Times Good University Guide 2010

- **3rd** in UK

The Independent Complete University Guide 2010

- **3rd** in UK

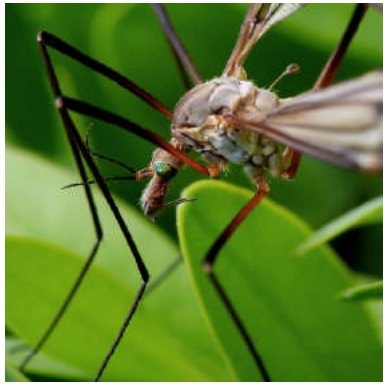
Imperial College London

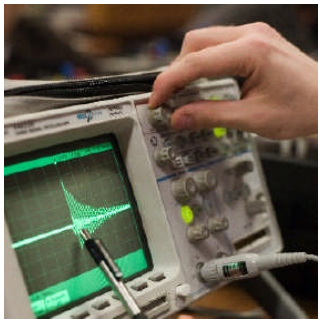
100 years of living science

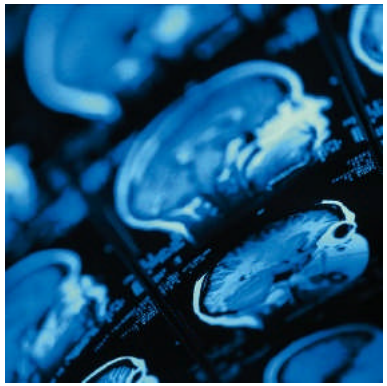
Our disciplines

- Engineering
- Natural Sciences
- Medicine
- Business

Tomorrow's breakthrough technologies







Imperial College London

100 years of living science

Global Challenge Institutes

•Bringing together expertise from across Imperial to tackle some of world's greatest problems and train a future generation of scientists

•Energy Futures Laboratory

- Developing research addressing major energy challenges
- Influencing international policy

•

•Institute for Security Science and Technology

- Applying interdisciplinary science to tackle current and future threats to safety and security

•Grantham Institute for Climate Change

- £12 million donation by Granthams – largest private funding given to climate change in UK
- Research to develop mitigation techniques
- Influencing international policy

•Institute for Global Health

- Research to tackle health problems, particularly in the world's poorest countries
- Working with development and health agencies and foundations
- Analysing and influencing international policy

Imperial College London

100 years of living science

Multidisciplinary programmes

- **Multi-disciplinary institutes**:
  - Biomedical Engineering
  - Systems & Synthetic Biology
  - Institute for Mathematical Sciences
  - Porter Institute for Biofuels
  - Shock Physics

- **Centres and large multi-disciplinary programmes**

- **Multidisciplinary Themes**
  - **Clinical Trials**
  - **Population Studies**
  - **Health Technologies**
  - **Energy and Environment**
  - **Tools & Technologies**
  - **Multi-scale Modelling**
  - **Imaging & Sensing**
  - **Structural and Functional Materials**
  - **Systems & Processes**
  - **Engineering Design & Experimentation**
  - **New business models,**
  - **IP**
  - **Risk & Uncertainty**
  - **Management of risk**

Imperial College London

100 years of living science

PNNL and Imperial: links in Energy & Environment, Computational Science and Security

- Relevant research within Faculties of Engineering and Natural Sciences: Departments of Physics, Chemistry, Materials, Earth Science and Engineering, Computing
- Multidisciplinary Institute and Centres: Energy Futures Lab, Thomas Young Centre, Grantham Institute for Climate Change, Institute for Security Science and Technology
- Atmospheric models: Physics, Professor Ralf Toumi
- Fuel cells, Solar energy: Energy Futures lab, Chemistry, Physics, Materials, Thomas Young Centre
- Novel catalysts, surface chemistry, batteries, Li-ion batteries, ‘Ab-initio’ electrochemistry, point defects in insulators: Chemistry, Physics, Materials and the Thomas Young Centre
- National Security; Institute for Security Science and Technology

Imperial College London

100 years of living science

The Energy Futures Lab

Integrates across Science, Engineering, Policy and Business in the energy sector

- Established in 2005 to promote and stimulate multi-disciplinary research in energy at Imperial College.
- Imperial College has a research budget of £30M pa for energy research, one third from industry.
- Around 370 energy projects, and 600 research staff and students undertake energy research.

Energy Technologies

-Fuel cells and batteries
-Bio-energy
-Hydrogen
-Solar
-Carbon capture and storage
-Oil and gas
-Smart grids
-Transport
-Nuclear fission and fusion
-Future fuels
-Electric and hybrid vehicles
-Green aviation

Integrating Themes

-Energy systems engineering
-Energy policy
-Sustainability analysis
-Energy business research
-Energy in society

energy futures lab

Imperial College London

100 years of living science

The Energy Futures Lab builds multi-million pound, multi-disciplinary research programmes

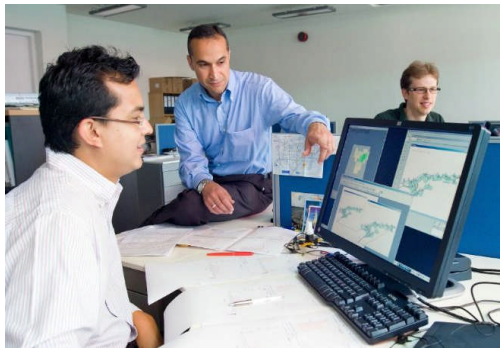
http://www3.imperial.ac.uk/fuelcells/energyfutureslab

Advanced Petroleum Engineering

£3m over 5 years, funded by Shell
$70m over 10 years funded by Shell & Qatar Petroleum
£1.1m over 3 years, funded by Masdar

Urban Energy Systems:

£4.2m over 5 years, funded by BP



Artificial Leaf:

£1.5m over 3 years, supported by Imperial strategic funding
Solar Hydrogen: £4.5m over 5 years, funded by EPSRC

Planet 2050: Electric Futures

In development

Imperial College London

100 years of living science

Institute for Security Science and Technology Mission

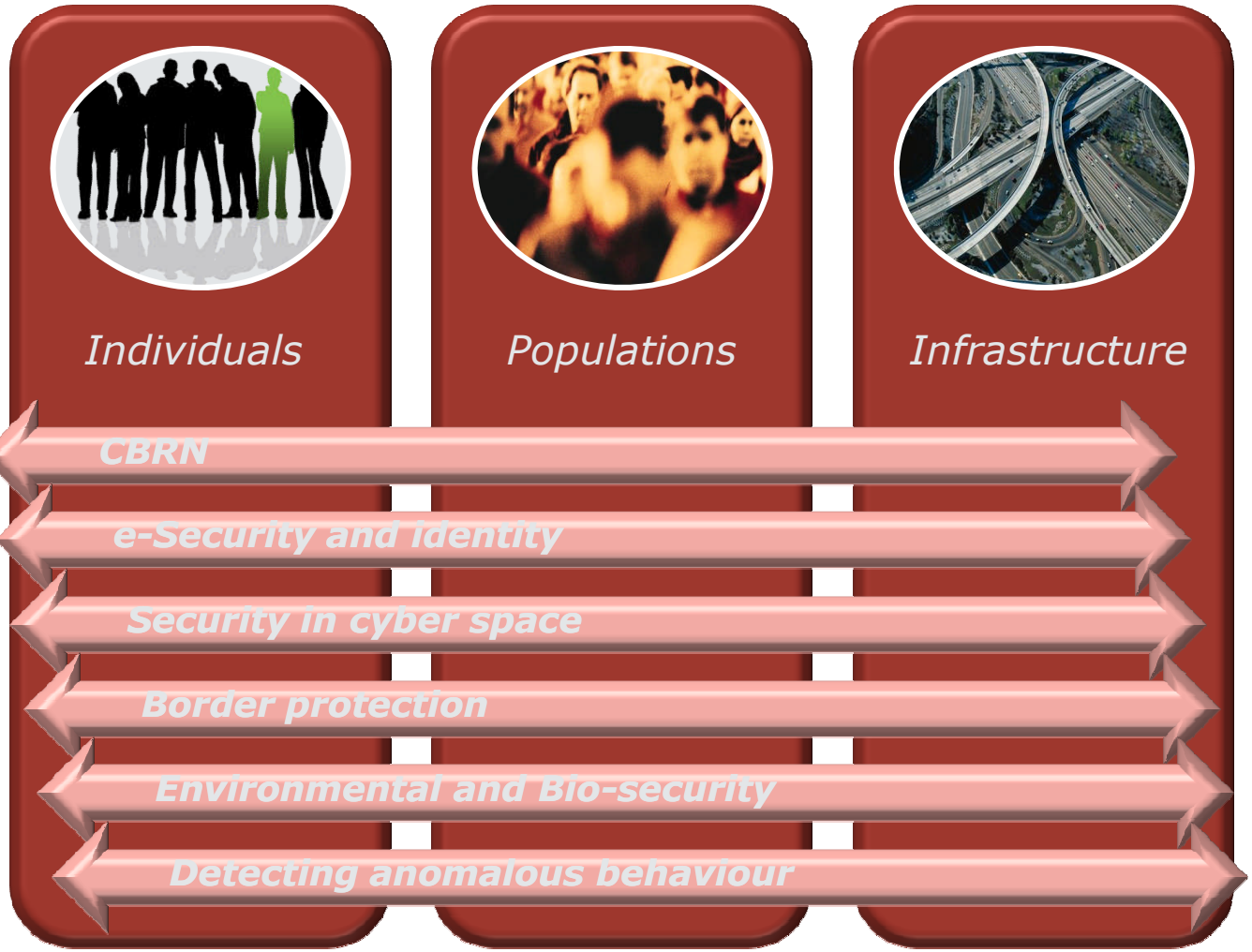
http://www3.imperial.ac.uk/securityinstitute

- To **focus** new science, technology and innovation on homeland and national security issues, working in **partnership** across public, private and academic sectors.
- To bring together **interdisciplinary** teams from across Faculties, Departments and research groups to meet customer requirements, exploring opportunities in physical, engineering, biomedical and computer sciences and IT.
- To meet Imperial's **strategic** intent to catalyse cutting-edge high impact interdisciplinary research to address major challenges.
- To generate **solutions** of value to the population, to government and to business.

Imperial College London

100 years of living science

Security Institute Programme Coverage



Imperial College
London

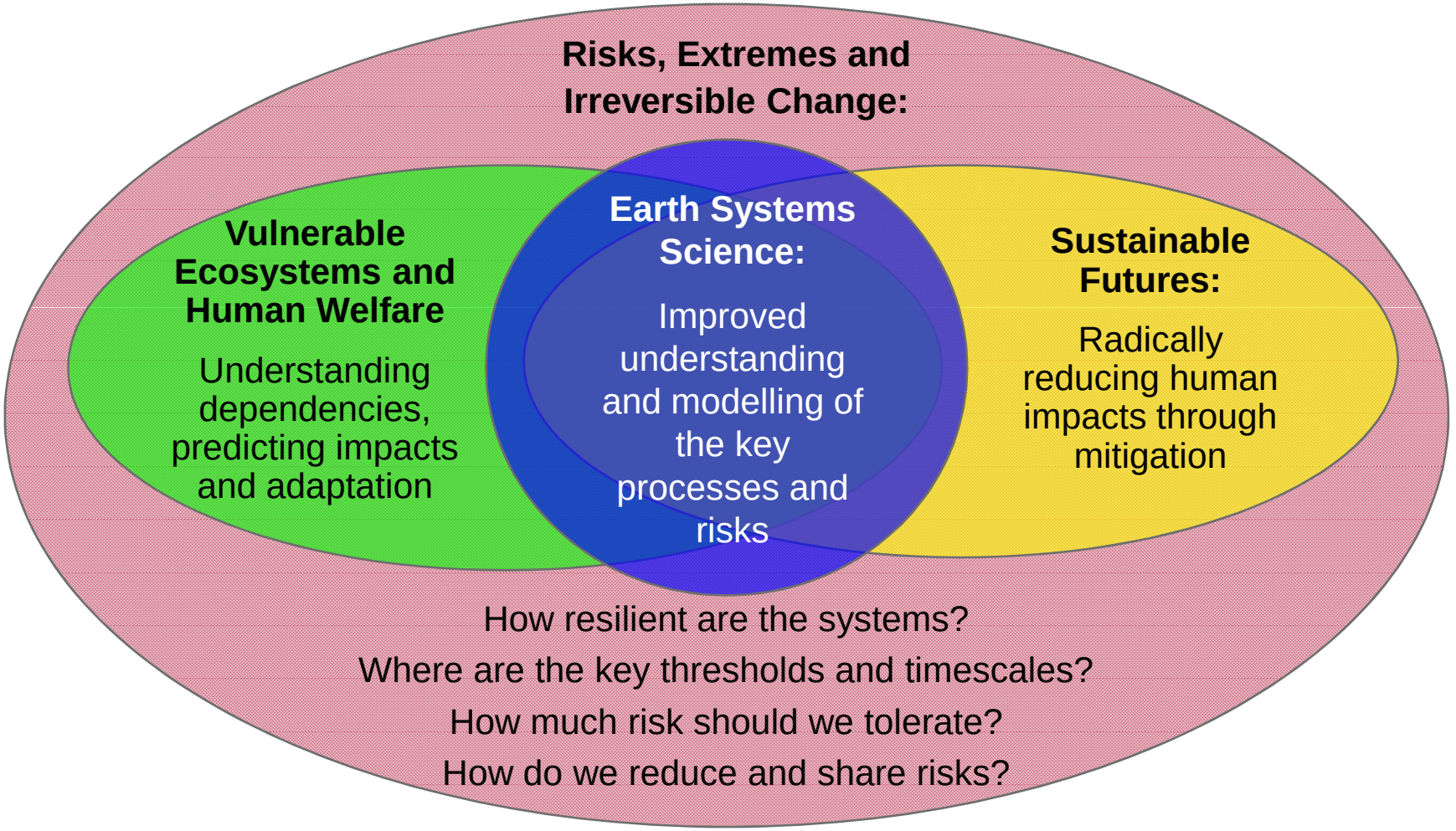
100 years of living science

Thomas Young Centre

Imperial College London

100 years of living science

Grantham Institute for Climate Change



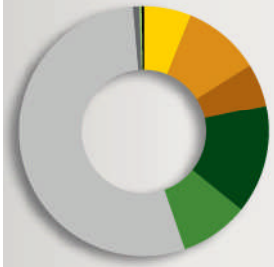
Imperial College London

100 years of living science

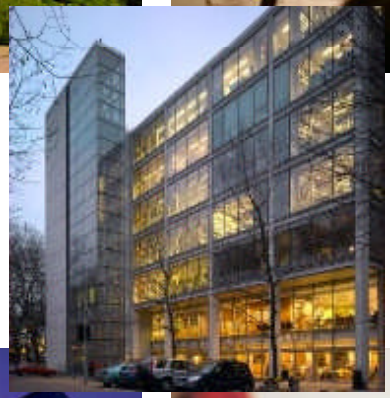
Faculty of Natural Sciences at a glance

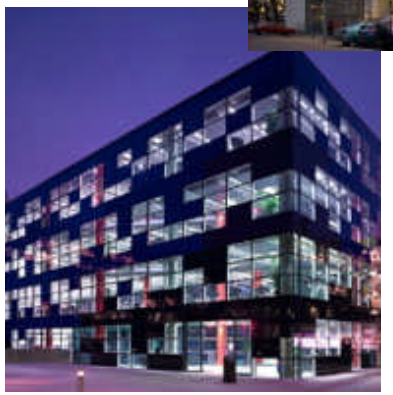
- Principal, Professor Maggie Dallman
- Deputy Principal, Professor Donal Bradley FRS
- Research income £57 million (2008-09)

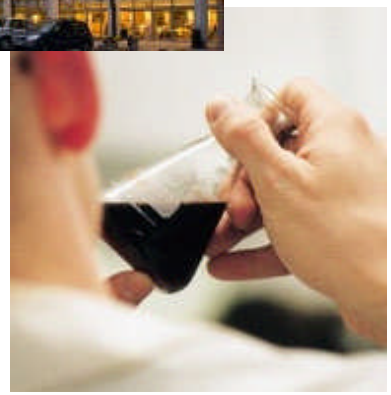
KEY STATS



349	Academic staff
556	Research staff
306	Support staff
1211	Total staff
797	Postgraduate Research (PhD)
490	Postgraduate Taught (Master's)
3,023	Undergraduate students
27	Fellows of the Royal Society
1	Fields Medal winner
1	Fellow of the British Academy



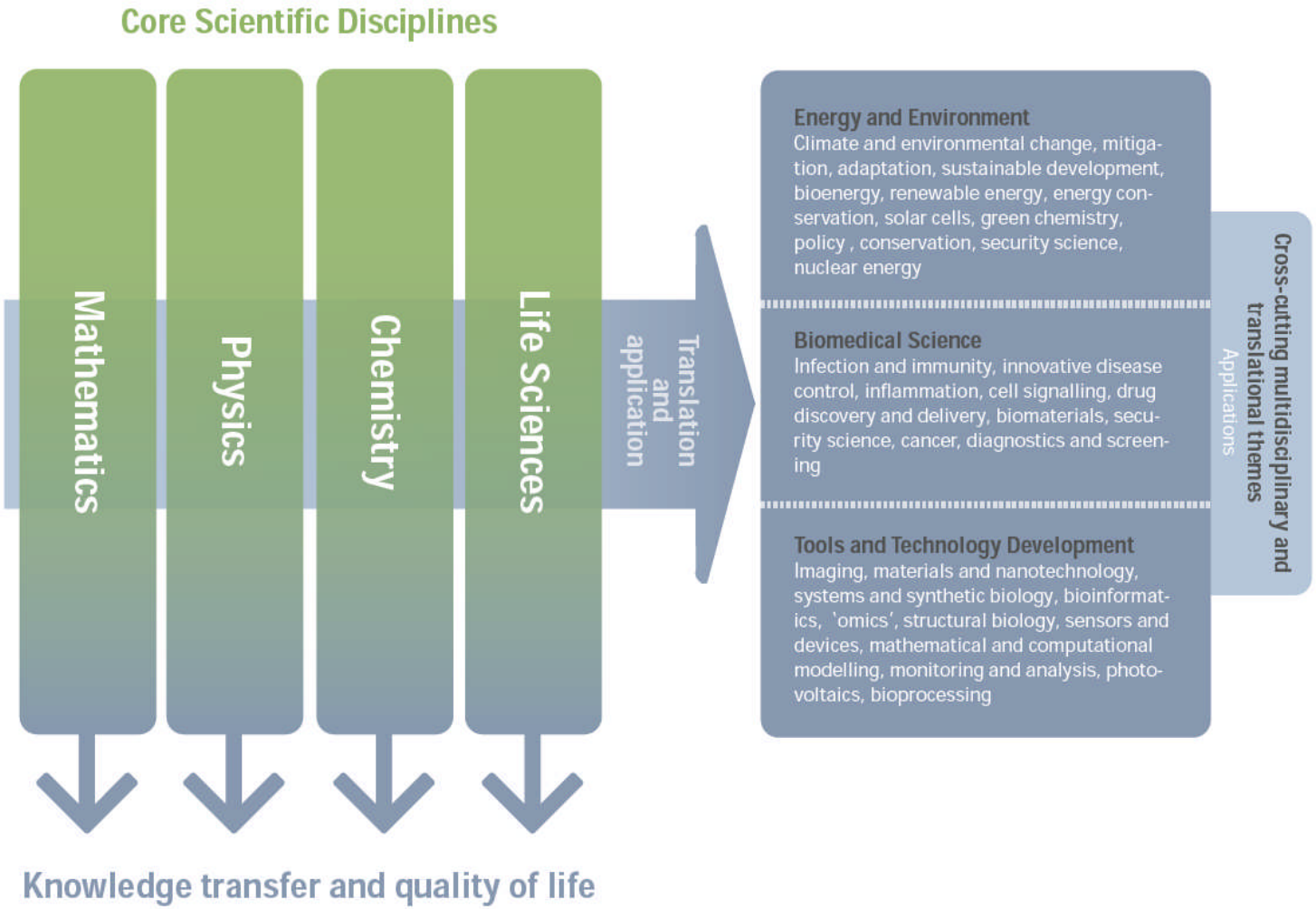




Imperial College London

100 years of living science

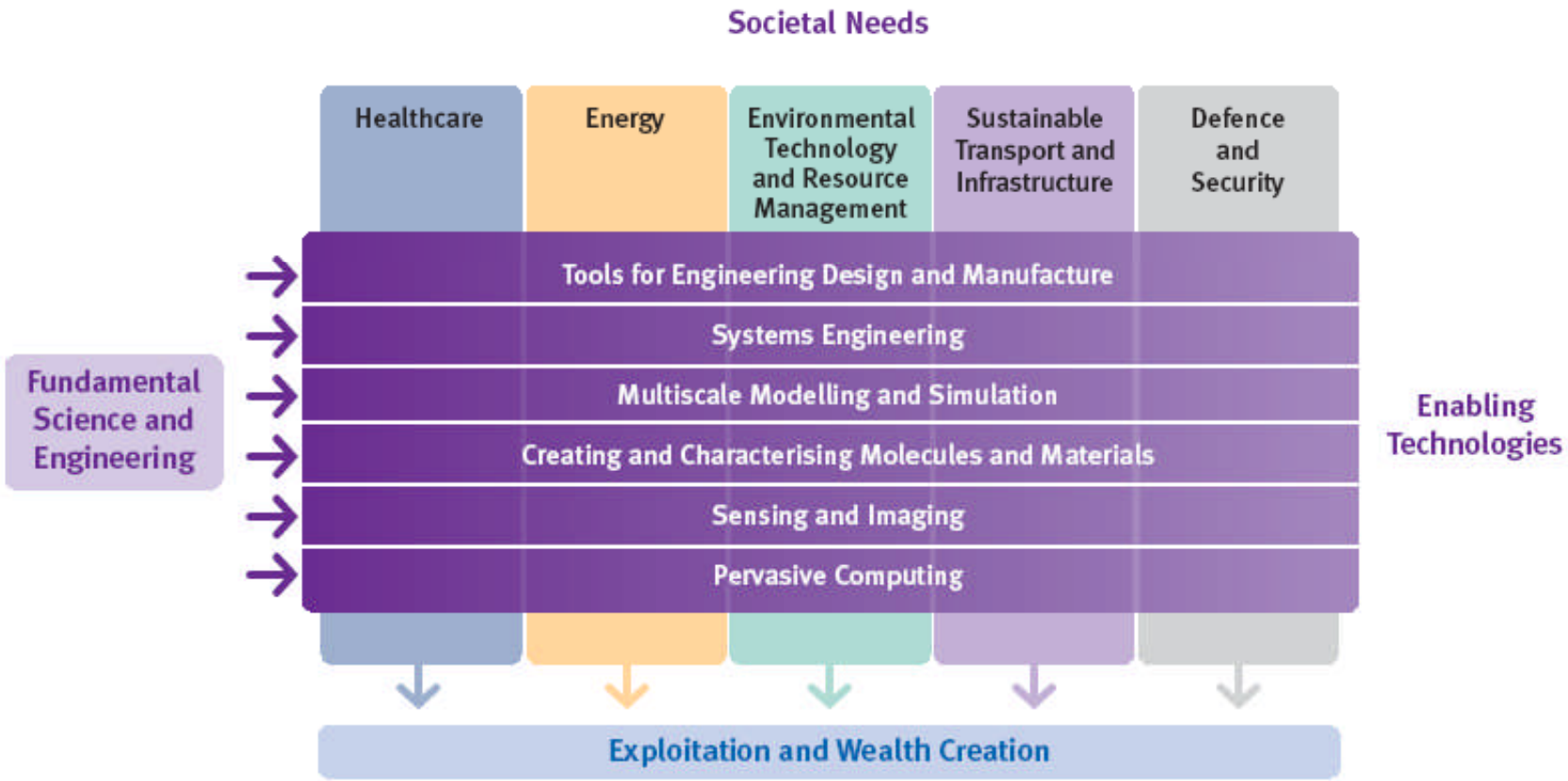
FoNS: Core disciplines and interdisciplinary work



Imperial College London

100 years of living science

Engineering - Research Strategy 2006 -2009



Note: our strategy for 2010 onwards will be published later this year