



Imperial Bioengineer

February 2015

Why take action on inequality?

by Dr Jenna Stevens-Smith, Outreach & Public Engagement Manager

The term 'taking action on gender inequality' can evoke a mixture of reactions. However, no one can deny that women are under-represented in engineering. The recent Perkins Review: Engineering Skills illustrated that the UK is not training enough engineers and that we are already facing a shortage of engineers in the workforce. The UK has the lowest proportion of female engineers in the European Union- less than one in ten engineering professionals are women. Bioengineering as a discipline tends to attract more women than other engineering disciplines, for example our undergraduate cohort is 42% female. But, as in all Science Technology Engineering Maths (STEM) subjects this percentage decreases as you rise up the career ladder.

Two key actions are to 1) increase the number of women and girls studying STEM subjects, and 2) improve the career advancement pathways for those that want to pursue a career in STEM.

There are a number of programmes and organisations out there providing mentoring, training and support for women and girls. These include events such as WOW- Women of the World festival which looks at the challenges facing women and girls in today's world through a series of interesting events at the Southbank from 1-8 March.

Following International Women's Day on 8 March, Imperial College London is

celebrating the past and present **Women at Imperial** through a public exhibition and events, running from 9-13 March.

Imperial is well-placed to assist in rectifying this inequality issue by showcasing its engineering excellence and inspiring the next generation of female engineers. The Faculty of Engineering are supporting this through an Engineering Summer School for 11-14 year old girls, running from 20-25 July 2015.

The Department's reason for addressing gender equality

The Department understands that acknowledging the presence of gender inequality in academia is not enough. That is why it is taking action to address these issues in a productive, meaningful and measurable way.

It has done this by conducting self-assessments through surveys and focus groups and deriving key points of action. The Department's intention is to submit an application for the Athena SWAN Bronze Award in 2015 in order to gauge progress made with respect to gender equality.

Two common misconceptions surrounding those taking action on gender equality are that 1) progress can only benefit one gender, and 2) it could lead to negative progress, giving rise to standards, situations and/or environments that are actually worse (particularly for one gender; i.e. positive discrimination) than those in place before.

Thank you to all who have been involved in the process so far. The changes made will continue to improve the culture and environment within the Department.

Please send comments to be.equality@imperial.ac.uk

SynbiCITE Lean Launchpad

This month saw the arrival of some entrepreneurial heavy weights to Imperial as SynbiCITE, the Centre for Synthetic Biology and Innovation's IKC, welcomed Steve Blank and Jerry Engel to College to run Lean Launchpad for Synthetic Biology.

Steve Blank is a serial entrepreneur based in Silicon Valley in California. He is credited with founding the Lean Start movement and is listed by the Harvard Business Review as a master of innovation. Jerry Engel is an internationally renowned expert in innovation and entrepreneurship and is Founding Executive Director Emeritus at the Lester Center for Entrepreneurship at Berkeley Haas. We are delighted to have them on board.

SynbiCITE's aim is to support businesses as they take their technology from bench to market. Lean Launchpad provides our partners with a way of doing just that but without the need for lengthy business plans.

This process is rapid and iterative and as such is entirely suited to synthetic biology technologies. Indeed, the UK government has recognised synthetic biology as one of the UK's Eight Great Technologies and has invested £150 million in synthetic biology research and training. The need for commercial technologies is urgent and we are addressing that urgency by providing our partners with the skills and knowledge they need to get their products and technologies out there. Our teams of entrepreneurs are nurturing some incredible business ideas from synthetic biology based schools outreach kit to skincare and wound healing technologies to water purification systems. They are currently part way through the programme and will be traveling to San Francisco in March to expand their customer base even further. We can't wait to report on the outcomes of all their hard work in April. Good luck to all the teams!

WELCOME TO THE DEPARTMENT

The Department are delighted to welcome the following new staff and researchers:

- **Mr Shouhan Zhou**
Research Assistant for Professor Etienne Burdet on his FP7 award, SYMBITRON
- **Dr Carlos Escobar del Pozo**
Visiting Researcher for Dr Jennifer Siggers
1st Feb 2015 to 31st Jan 2016
- **Dr Marios Tomazou**
Research Associate for Dr Guy-Bart Stan's EPSRC Growth Fellowship

Farewell to Ania Skorecka

Taught Courses Administrative Assistant who has moved on to a new admissions role at Queen Mary University of London this month.

GRANT SUCCESS

EPSRC First Grant Scheme awarded to **Dr Claudia Clopath** for *Brain-inspired non-stationary learning* (£125,000)

Wellcome Trust Henry Dale Fellowship for **Peter Hellyer** with Dr Claudia Clopath in *Homeostatic Plasticity* (£250,000)

Google Faculty Award awarded to **Dr Claudia Clopath** for *Learn not to forget* (£50,000)

MRC New Investigator Research Grant awarded to **Dr Claire Higgins** for *Understanding and Preventing Inappropriate Osteogenic Differentiation* (£500,000)

PUBLICATION SPOTLIGHT

Be sure to check out the Department's recently published works below:

Mark van Logtestijn, Elisa Domínguez-Hütter, Georgios Stamatas, Reiko Tanaka
Resistance to Water Diffusion in the Stratum Corneum Is Depth-Dependent.
PLoS ONE Feb 2015 10(2): e0117292. doi:10.1371/journal.pone.0117292

Richard Kelwick, Margarita Kopniczky, Iain Bower, Wenqiang Chi, Matthew Ho Wai Chin, Sisi Fan, Jemma Pilcher, James Strutt, Alexander Webb, Kirsten Jensen, Guy-Bart Stan, Richard Kitney, Paul Freemont
A Forward-Design Approach to Increase the Production of Poly-3-Hydroxybutyrate in Genetically Engineered Escherichia coli.

PLoS ONE 10(2): e0117202. doi:10.1371/journal.pone.0117202

Sietse Braakman, Thomas Read, Darren Chan, C. Ross Ethier, Darryl Overby
Colocalization of outflow segmentation and pores along the inner wall of Schlemm's canal
Experimental Eye Research, Volume 130, January 2015, Pages 87-96, ISSN 0014-4835, <http://dx.doi.org/10.1016/j.exer.2014.11.008>.

OUT AND ABOUT

Dr Jenna Stevens-Smith ran a Public Engagement Workshop for the Centre for Neurotechnology on 12 February. The workshop which was attended by postgraduate researchers focussed on how to design a public engagement activity.

Karla-Luise Herpoldt, PhD student in the Stevens Group is currently undertaking a 3 month fellowship in science policy at the Parliamentary Office of Science and Technology funded by RSC.

Dr Claire Higgins spoke to 6th formers on 27 February at Culford School, Bury St. Edmunds, about the link between Science and Medicine.

STAFF & STUDENT SUCCESS

Lab Manager **Ken Keating** was awarded the **Provost Excellence in Health and Safety Award** on 26 February.

Fourth Year undergraduate student **Bianca De Blasi** came runner-up in the **IET and IMechE Healthcare Technologies Taught Programme Project Poster Competition** on 25 February.

Congratulations to **Naiara Rodriguez Florez** for successfully passing her viva on her PhD thesis entitled *Mechanics of Cortical Bone: Exploring the Micro- and Nano-scale*. Naiara was a GTA in Mechanics and Programming. We thank Naiara for all her service the past 3 years and wish her all the best on her next adventure!

Amanda Foust, a new postdoctoral fellow in the Schultz laboratory, has been awarded an **Imperial College Junior Research Fellowship**. Amanda also played a major role in the preparation of the NIH "Obama" BRAIN grant, "Three dimensional holography for parallel multi-target optogenetic circuit manipulation" (2015-18), which as a Paris-London collaboration is one of only two such grants awarded outside the USA.



Centre for Blast Injury Studies Update

by Dr Emma Burke, Centre Manager

Early this month the Centre was visited by Lady Emma Joy Kitchener, great grandniece of Lord Kitchener, and her husband Lord Julian Fellowes. With an interest in the Centre's work on lower limb injury and rehabilitation, the visitors enjoyed a tour of the newly refurbished injury simulator lab and met with several researchers and academics of the Centre. Upon departure Lord Fellowes said they were both "very interested and encouraged to see the tremendous work being done in the Blast Centre to improve treatment of amputees and the war wounded".

On February 10th CBIS Director Prof Anthony Bull took to the dizzy heights of Queen's Tower as part of the College's annual Raising and Giving (RAG) Festival. RAG Week is a College wide event dedicated to raising money for, and awareness of, selected charities. This year the Mines Advisory Group (MAG) was one of Imperial's chosen charities. MAG was established in 1989 to save lives and build futures for civilians worldwide by finding ways to reduce the daily risk of death or injury due to landmines. After his bungee jump from the Tower, Professor Bull explained why he had undertaken such a feat:

"100 years ago landmines were a problem for the military. Today, they are a problem for civilians. CBIS

remains committed to ensuring that all that is learned through its research of military blast injury is successfully transferred to the civilian domain. We must continue to support the work undertaken by charities such as MAG and Find a Better Way in the clearance of landmines around the world"

Along with a CBIS led cake sale on Friday 13th, the Centre successfully raised £531 for MAG (10% of the College's RAG Week total). Thanks to all in the Department who generously supported both events.

The same day, Sqn Ldr Ed Spurrier and Dr Emily Mayhew gave a well-received talk at the Royal College of Surgeons. Entitled "From the Western Front to Afghanistan: Transforming Military Medicine for a Century", their talk was in support of a learning programme targeting visitors to the "Hunter to Helmand" platform of events running throughout February at RCS.

This month saw the launch of Specialised Seminars a termly research seminar dedicated to the Centre's clinical priorities. Led by Dr Mazdak Ghajari the first instalment focused on Traumatic Brain Injury and involved presentations from Dr Robert Dickinson, Professor David Sharp and Professor Antoine Jerusalem (University of Oxford).

Next event: Dr Tobias Reichenbach – Hearing Loss - April 15th

UPCOMING EVENTS

Departmental Seminars

Thursdays 12.00-13.00

5 March 2015 12:00-13:00 RSM2.28

Dr Ryan Pedrigi from Imperial College London

A framework to explore the patho-mechanobiology of thin-cap fibroatheroma

12 March 2015 12:00-13:00 RSM2.28

Professor Kenith Meissner from Swansea University

19 March 2015 12:00-13:00 RSM2.28

Dr Tim Schoof from University College London

The effects of ageing on subcortical auditory processing

26 March 2015 12:00-13:00 RSM2.28

Dr Kaori Sugihara from the University of Geneva

Development of applications with self-assembled lipid structures

For more information, visit:

<http://www3.imperial.ac.uk/bioengineering/events/departmentalseminars>

Science Friday Seminar Series

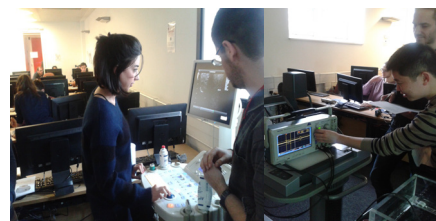
Fridays from 16:20

27 February 2015 16:20 RSM 2.28

Samira Jamalain (Professor Jimmy Moore's group).

Possible resolution of an old physiology argument: Evidence that negative interstitial pressure occurs because the lymphatics suck.

Followed by pizza and networking.



Biomedical Engineering MSc and MEng students getting hands-on with imaging in the Advanced Medical Imaging practical class (26 Feb)

Images courtesy of Dr Robert Dickinson

Imperial Events

9-13 March Women@Imperial Week

A week celebrating the achievements of women at Imperial

9-10 May Imperial Festival www.imperial.ac.uk/festival

4-5 June BME-IDEA/BioDesign EU Symposium

20-25 July Engineering Summer School for 11-14 year old girls



Volleyball charity tournament

When: Saturday 7th of March, 8-11am

Where: Ethos

The Imperial College Volleyball Club and RAG are calling all the volleyball fans, experts and beginners to the best volleyball tournament yet! All the money we raise (a minimum of £5 to participate) goes to MAG (Mines Advisory Group) a charity that disarms landmines in post-war zones. There will be sweet prizes for the winners!

ALUMNI UPDATE

Kirubin Pillay (MEng 2014) won the Blackwood's student design competition with his final year project *eye-controlled wheelchair* with Dr Aldo Faisal's group.

Alex Dahinten (BEng 2010) currently Technical Coordinator of the Developing World Healthcare Technology Laboratory, Duke University, has secured a graduate school place at Baylor College of Medicine to study prosthetics and orthotics.

CONTACT

Send news for the next issue to:

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