

Chemical Engineering Newsletter

November 2012

Awards and Achievement

Recent MEng graduate Neal Wannell received his [Salters' Graduate Prize](#) at a ceremony at the Salters' Institute on the 23rd November.

PhD student Ali Mehdizadeh won an internal Unilever prize for best publication for his paper 'Complex Network Optimization in FMCG' at the [21st European Symposium on Computer Aided Process Engineering](#).

News in Brief

On the 26th November, Dr. Edo Boek gave a keynote lecture, "Multi-scale flow experiments, imaging and simulation" at the [second international symposium on application of nano-geosciences in petroleum engineering](#) (NanoGeoscience 2012), in Kyoto, Japan.

The Head of Department Writes...

Welcome to another edition of the Department newsletter, and thanks to Rayner Simpson for his efforts in bringing this together. Several members of the Department have distinguished themselves during this period, and congratulations in particular to Stratos Pistikopoulos, who has followed in Roger Sargent's footsteps and been awarded the AIChE's Computing in Chemical Engineering Award, which was presented at the CAST Division dinner and banquet at the AIChE Annual Meeting this autumn in Pittsburgh, PA (USA) – see page two. We have a new intake of students at all levels: undergraduate, MSc and PhD, and I welcome you all to the Department, and look forward to working with you in pursuing our mission of excellence in teaching and research in Chemical Engineering. We are coming to the end of a busy term and I guess that most of us are looking forward to relaxing and refreshing over the Christmas break – I wish you all the best for the festive season and success in 2013

Andrew



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Stratos Pistikopoulos presented with prestigious computing award

At this year's American Institute of Chemical Engineers' (AIChE) [annual meeting](#), held in Pittsburgh at the end of October, Professor Stratos Pistikopoulos was presented with the 2012 [Computing in Chemical Engineering Award](#), which recognises outstanding contributions in the application of computing and systems technology to chemical engineering.

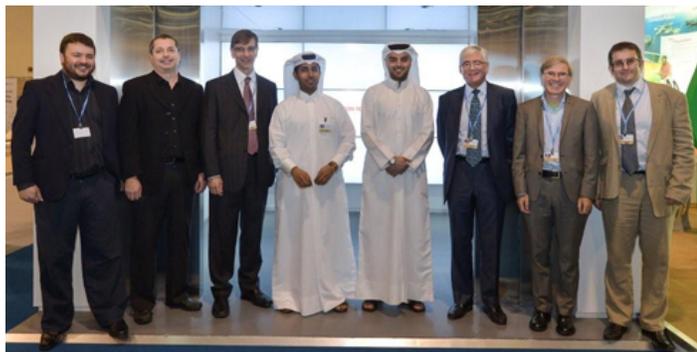
Stratos is recognised by the AIChE as a world leading authority in process systems with industrially-applied innovative and breakthrough technologies (such as the patented MPC_on_a_chip). He becomes the first British-based academic to be awarded the prize since Roger Sargent in 1990.

"This has been a pivotal milestone in my academic career," says Stratos. "It is also a major accolade to CPSE, the Department and Imperial".



Stratos and his computing award

QCCSRC showcases work in Qatar



L-R): Paull Fennell, Branko Bijeljic (ESE), Marting Trusler, Ali Al-Menhali, Ibrahim Daher, Geoff Maitland, Martin Blunt (ESE) and Iain Macdonald

Members of the [Qatar Carbonates and Carbon Storage Research Centre](#) (QCCSRC) are currently in Doha, Qatar, for the [UN Framework Climate Change Conference](#), where for the first time Imperial College has a presence at this globally important event. The conference offers an opportunity to spotlight a few exciting recent developments in cutting-edge research and innovation, including the [Artificial Leaf](#) and Energy Storage and the Sahara Forest Project Pilot Concentrated Solar Power Plant.

You can follow the QCCSRC's adventures at the Climate Change Conference [here](#).

Dates for your diary

Thursday 6th December, 17.30pm, LT 1 – [the 19th Professor Roger W.H. Sargent Lecture](#): *Optimisation under lack of knowledge – the key to operational success*, Prof. Sebastien Engell (TU Dortmund).

Saturday 8th December, 7.30pm – Imperial College Choir (featuring our very own Susi Underwood) present *Israel in Egypt* at the Holy Trinity Church on Prince Consort Road. For further information and tickets please contact [Susi](#).

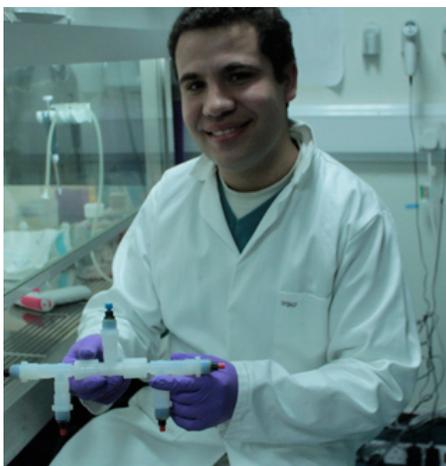
25th-26th March 2013 – the Department will host the [ChemEngDay UK conference](#), bringing together researchers, engineers and scientists from around the UK to explore the latest technological advances and research results in core areas of chemical engineering.

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Meet the Researcher

This is the first of a series of features on Departmental postdoctoral research staff, where we invite them to tell us about themselves and the work they do. First up is [Dr. Hugo Macedo](#) of the [Biological Systems Engineering Laboratory](#).



Tell us about your journey to Imperial College.

I was born in a very small town, in Northern Portugal, called "Arco de Baulhe" - the name is also funny in Portuguese! When I was seven years old, my parents had to move to the far South of Portugal. When I was seventeen, again I had to move - this time to the Centre of Portugal, to Lisbon, where I could study Chemical Engineering. By then, I must admit, I had no idea of what Chemical Engineers did - I actually thought I could do medical research by doing this course. It was during this time, in 2005, that I had the chance to do an ERASMUS placement with Andrew Livingston's group, here in our Department, and for 6 months I got to know Imperial and the cutting edge research that everyone was doing here. It was immediately after this that Andrew invited me to do a PhD here, on the subject of "Human Blood Production". The chance of working here at Imperial and on a topic that I thought had been closed for me, medical research, made this the most obvious choice. I am currently working with Sakis Mantalaris, in the second year of my post-doc, carrying on the research I started during my PhD.

What does your research involve?

My research revolves fundamentally around one premise: blood donations. Over 45 million litres of blood are used annually worldwide (around 20 Olympic-size swimming pools), and this is likely to grow according to the World Health Organisation; it is estimated that around a third of the world's population will need a life-saving blood transfusion at some point in their life. For these reasons, we wanted to develop a bioreactor that would mimic nature's best known blood production facility: bone marrow. This required the combination of several different fields, such as material sciences, biology, tissue engineering, etc. By combining these ideas, we have successfully developed the first 3-dimensional hollow fibre bioreactor that has shown to be able to produce human red blood cells.

What potential impact could your work have, and what's next?

*The numbers of cells produced are still very low (only one drop!), but the potential is immense, as this technology can be further used in other fields, such as blood disorders, drug testing, etc. We are now looking for funding to further develop this technology to be able to bring it closer to the bedside. We have been collaborating closely with the National Health Service in order to bring this project forward. Our work was selected as one of the [10 Big Ideas for the Future](#) [pp.32] by Research Councils UK and was featured on the cover page of *The Chemical Engineer*.*

What are you most proud of?

One of my most proud moments was when I participated in the 2009 Rugby March for the [Richard Thomas Leukaemia Fund](#), and I had the chance to actually witness and talk to the people who could benefit from our work - inspirational!

How about life outside of the lab?

I am a member of the Imperial Entrepreneurs group, and I am also vice-President of the Portuguese Association of Researchers and Students in the UK, an Association that allows me to get involved in important decision-making projects that can help the large Portuguese community of researchers and students in the UK. I don't get a lot of spare time, but when I can I try to breathe in as much as possible of the cultural diversity of London. You could catch me taking in a classical music concert at the Royal Albert Hall, or a gig at the O2 Arena, a small stand-up comedy night in Soho or a musical in the West End. I also like to play football (not as good as Ronaldo, certainly!), running and photography. Most frequently, however, you would catch me thinking about the business plans for some of my ideas.