Voice! from Alumni member

Vol.20 Professor Matthew S. Turner

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Professor , Department of Physics based in the Centre for Complexity Science, University of Warwick

Biography

Current	Professor, Department of Physics based in the Centre for Complexity Science, University of Warwick
2016	Mayent-Rothschild Foundation visiting Professor & lecturer, Institut Curie, Paris
2010 –2015	UK Engineering and Physical Sciences Research Council (EPSRC) Leadership Fellow
2009 – 2013	Joliot-Curie Foundation visiting Professor, ESPCI, Paris
1998 – 2001	W.M. Keck visiting Fellow, Center for studies in Physics and Biology, Rockefeller University, New York,
1995 – 1996	Postdoctoral fellow, based in the Institute for Theoretical Physics, University of California at Santa Barbara,
1995 – 2003	Royal Society University Research Fellow
1992– 1996	Fellow under title A, Trinity College, Cambridge
1991– 1992	EU Postdoctoral fellow, CNRS, Strasbourg, France
1991	PhD, Cambridge University, "Dynamics of surfactant systems"

I started off in science as a theoretical physicist. I believe I am still a theoretical physicist. After all, the word physics comes from the Greek word physis means “nature”.

I now find myself being quite evangelical in arguing that living systems are the field where the most interesting physics can be found. Take a lump of matter, organise it the right way (hint: use evolution) and it will then go around, all by itself, harvesting energy so that it can move, grow, repair and reproduce. It can even build an information processing device using highly connected, nonlinear elements called neurons that it can use to interpret the world around it. Tell me with a straight face that particle physics has anything with which to touch that! Although we now give fields different names, like “Biology” and “Physics” everything consists of lumps of matter interacting with physical forces while respecting the laws of thermodynamics. I have become interested in biology, at scales from (sub)cellular processes to collective behaviour of organisms, up to and including humans. I have even recently published on economic interactions, after finding myself drawn to understand what happened in the 2007-8 crisis.

I received my PhD, on so-called “living” polymers, that can exchange mass, in 1991. I was working in the Theory of Condensed Matter group in the Cavendish Laboratory at Cambridge. Sir Sam Edwards was still the group head and I remember he used to invite everyone around to his garden parties and share his fine wines. This social obligation that seemed to come with being a scientific leader made an impression on me. I was unbelievably lucky to be supervised by Mike Cates. He is undoubtedly one of the finest minds in science in the UK today and is now Lucasian professor at Cambridge, the position first held by Sir Isaac Newton. I was his first PhD student. This may explain why he was so indulgent of my frequent dead-end calculations and hopeless inexperience.

I then enjoyed a postdoc at a CNRS lab in Strasbourg, working with Jean-Francois Joanny on polymers and membranes. Here I learned about the French style of physics, e.g. using scaling arguments. I admire it and still studiously point out the French “style” to my students, when I use it. After some memorable years as a research fellow back at Trinity College, working on similar systems, I won a Royal Society University Research Fellowship. I took this, first to the Institute for Theoretical Physics at UCSB in Santa Barbara, then to the Centre for Studies in Physics and Biology at Rockefeller University in New York. Rockefeller is where I first started to really become interested in Biology, an interest that has shaped my future career. It was an eye-opener for me to see how seriously an institution like Rockefeller, with only about 100 faculty members, goes about doing the kind of biology that systematically wins Nobel prizes. It was a different world and I found it very exciting.

I have now been on the faculty at Warwick University in England for 20 years. At this point in my career I faced a conundrum. I found myself running a group of about 10 research students/postdocs. Could I afford, professionally speaking, to indulge myself with a lengthy sabbatical abroad? What if that involved ramping down my group for a while? What if it is then difficult to jumpstart it all again? I looked carefully at the pros and cons, decided that I will only live once, and applied for a JSPS long term fellowship to work with Prof Ryoichi Yamamoto at Kyoto University. I am so grateful to have had that opportunity.

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I have since fallen deeply in love with Japan. There are too many little things to list but maybe I'll just mention the care with which everyone goes about their lives, including the smallest act of interacting with another person. I find it all very respectful and inspiring. I also appreciate, at my own bumbling level, the architecture, history, craft, cuisine and (especially) the aesthetics: after all, this is the home of mono no aware.

The science has been fabulously rewarding, more so than I could have hoped for. Prof Yamamoto has been such an encouraging collaborator, and so kind as a host. We ended up working on a couple of problems that were new for both of us, and for the other lab members who have joined in. The first project, on control theory applied to epidemiology, perhaps has some prospect of actually impacting science policy. The second, on incorporating a model of how cell division is regulated into a physical description of tissue growth, was recently published in Physical Review X - my first paper in this prestigious journal.

I have enjoyed seeing the respectful and often efficient manner that the Japanese go about doing science. There is, however, an elephant in the room for Japanese science: how is it going to manage its development in the competitive, internationalised world of the future, so as not to risk appearing moribund? A plan is needed to maintain, or improve, its comparative scientific standing while retaining its uniquely Japanese character.

It cannot (and should not) simply mimic the hyper-internationalised and financialised academic systems of the English-speaking world. Would it be too cheeky for me to whisper an ambition to one day sit on a panel charged with addressing these questions, if JSPS ever felt the need to constitute one?

Sitting at Myokenji temple in Kyoto, admiring the view

JSPS Alumni Association of the UK and the Republic of Ireland (RoI)

Please join the JSPS Alumni Association of the UK and the Republic of Ireland (RoI)!

As a former JSPS Fellow, we would like to ask you to join the JSPS Alumni Association of the UK and the Republic of Ireland (RoI). Our Alumni Association was established in 2003 and carries out a number of activities throughout the UK and RoI with numerous benefits for members. One of them is "The JSPS London Symposium and Seminar Scheme." The aim of this scheme is to provide support for members holding a symposium or seminar and to create high quality collaboration in cutting edge/ internationally competitive areas at institutional or departmental level between research institutions in the UK or RoI and Japan. Under this scheme, JSPS London will partially support the following matters*:

*The detailed support is subject to change.

1. Costs for inviting symposium/ seminar speakers from Japan
2. Costs for hiring a venue, printing materials, advertising and so on*
3. Strategic support to help advertise and organise the event.

The application details of this scheme will automatically be e mailed to registered Alumni members during our next call. For further information please contact JSPS London by email at enquire@jsps.org. Again, this is exclusively open to the JSPS Alumni members. So why not join us today?

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