## Wolfson Research Event 2014 Schedule

Friday 2 May 2014, 14:00-19:00, Lee Hall, Wolfson College, Cambridge

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<td>14:00-14:15</td>
<td>Welcome</td>
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<td>14:15-14:30</td>
<td><strong>Introduction:</strong> Professor Sir Richard Evans, President of Wolfson College</td>
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<td>14:30-15:00</td>
<td><strong>Keynote presentation:</strong> Professor John Naughton, Vice-President Wolfson College</td>
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<td>15:00-15:20</td>
<td>Break &amp; poster viewing</td>
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<td>15:20-16:20</td>
<td><strong>ORAL SESSION 1</strong></td>
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<td>15:20</td>
<td><strong>Mohammed Doudo, PhD in Veterinary Medicine, University of Cambridge</strong></td>
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<td><strong>Title:</strong> Follicular dendritic cell (FDC): a key player in the persistence of foot-and-mouth disease virus</td>
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|            | **Abstract:** Foot-and-mouth disease (FMD) is a highly contagious and economically important viral disease of cloven-hoofed animals. FMD is endemic in Africa, Asia and South America and vaccination is considered a major tool for disease control in these areas.
|            | Two fundamental problems impede effective control by vaccination; the FMD virus (FMDV) carrier state and the short-term duration of immunity induced by vaccination, which contrasts with prolonged immunity induced by natural infection. The basis of this discrepancy is unknown and a clear understanding could lead to the design of a new generation of FMD vaccines, capable of inducing such long-term antibody responses.
|            | Follicular dendritic cells (FDCs) are specialised immune cells that are able to retain antigen on their surfaces for prolonged periods and play a central role in generating and maintaining high antibody titres. The role of FDCs in FMDV infection and vaccination is not understood. Using a mouse model we aim to explore the role of FDCs in FMDV infection and vaccination, and in the generation and maintenance of long-term antibody responses.
|            | Analysis of mouse spleen sections indicate that FMDV genome is retained in germinal centres up to 46 days post infection. In addition, we have shown in these mice that FMDV capsid protein is detectable within the light zone of germinal centres in association with FDCs, highlighting a potential role for FDCs in FMDV persistence and in the maintenance of long-term humoral immune responses to FMDV. |
| 15:32      | **Justin Park, MPhil  Anglo-Saxon, Norse and Celtic Studies , University of Cambridge** |
|            | **Title:** The Purpose of Pain in the Miracles of St. Swithun |
|            | **Abstract:** Reading was central to the lives of medieval monks, as was writing. These textual communities generated a tremendous amount of hagiography and miracle collections. My research is directed at one such text, written in tenth century England, which records the posthumous miracles of St Swithun. My argument supposes a theological purpose to these stories. I intend to show that the miracle stories of St Swithun can be read as presenting a religious argument for the
Significance of suffering, and using suffering to define the community of the reader. The text, by initially suggesting that it was our capacity to suffer that Jesus took on in order to perform his salvific act of being crucified, presents the experience of suffering as a way for man to identify with Christ. This charged concept of suffering is then projected onto the sick and injured lay people of the community, connecting their suffering to Christ’s suffering on the cross. The text then further expands this notion of a community founded on our shared capacity to suffer by including slaves, and hardened criminals, as both suffering subjects and as objects of the saint’s merciful intercession. Ultimately, the miracles of St Swithun are presented as events in which the reader may discover the theological significance of pain and suffering, and well as be able to see himself bound in a community defined by our shared capacity to suffer.

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<tr>
<th>15:44</th>
<th>Varun Khanna, PhD in Divinity Studies, University of Cambridge</th>
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<tr>
<td><strong>Title:</strong> Ancient Hints for a Modern Method of Studying Consciousness</td>
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<td><strong>Abstract:</strong> The study of “consciousness” has been of interest to scientists, philosophers, and laypeople alike for millennia. But the constant struggle to define consciousness has been due to its intangible nature. How can we describe something that we cannot perceive with our senses? We can know what it is like to perceive, and what it is like to have consciousness, but it has proven difficult over the millennia to actually pinpoint with a measure of certainty what consciousness actually is. Furthermore, when attempting to study consciousness, the method by which we can study it is elusive. Is it necessarily limited to the philosophical realm? Can there be a “science of consciousness”? By current empirical scientific standards, it is difficult to study consciousness objectively and holistically because either we do not know enough about the brain or there are seemingly nonphysical components to consciousness that are rendered totally subjective by the scientific method. But must the methods employed to study consciousness be borrowed from any of the natural scientific disciplines, like biology, chemistry, or physics, or can it indeed be studied by the psychological or philosophical disciplines, with an independent epistemology and methodology? Today we have many distinct and arguable philosophies of consciousness because the study of consciousness is one of the most fundamental studies of humankind, yet its object is highly elusive to systematic enquiry. It is an ancient study, but also a contemporary study. In this research, we take a look at the methods of studying consciousness according to a set of ancient Indian texts, namely the Upaniṣads, whose sole purpose seems to have been the understanding of consciousness. By looking at these ancient texts, we may gain some insight into developing a modern method of studying consciousness.</td>
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<th>15:56</th>
<th>Alexandra East, PhD in Chemistry, University of Cambridge</th>
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<td><strong>Title:</strong> Simulations in Biology: the “Computational Microscope”</td>
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| **Abstract:** Scientists make ever more powerful microscopes in an attempt to examine the tiny building blocks of life, such as protein and lipids. Since the development of computational techniques and a greater understanding of the physics underlying biological processes, molecular dynamics (MD) simulations have developed as a distinct field. Using computers we can now simulate molecules in different
environments to mimic the real conditions they experience, and examine the
behaviour they display- a "computational microscope"- complementing the
available experimental evidence.
I have examined a molecular system used by Klebsiella oxytoca bacteria to secrete
an enzyme known as PulA. PulA breaks down surrounding sugars that the bacteria
subsequently takes up and uses as a carbon source in order to survive. PulA is an
inner-membrane anchored lipo-protein, which remains surface-associated before
and after secretion, embedding its carbon chains in the inner and outer bacterial
membranes.
MD simulations have been used to investigate the conformational dynamics of
PulA and its interactions with the bacterial membrane in different micro-
environments. Prior to secretion the protein is held in a bacterial compartment
known as the periplasm, which has an unusually high calcium concentration.
Simulations of the protein in a calcium-rich environment allowed examination of
the effect of the periplasm on the structure and dynamics of the protein.
Simulations have also shed light on the potential role of the carbon chains in
anchoring the protein inside the bacteria. This talk is a light introduction to MD
simulations and their use in complementing experimental work.

16:08

Andrew Goldman, PhD in Music, University of Cambridge

Title: Delayed auditory feedback disrupts improvisation more than memorized
performance in piano playing

Abstract:
Understanding the cognition underlying musical improvisation is a difficult problem
both in practice and in principle. The behaviour is thought to be unpredictable by
definition, so operationalizing it for experimentation presents a problem in
practice. What would one measure? How would one draw conclusions from these
observations? Further, given that definitions of improvisation vary, it is difficult to
inform an understanding of improvisation through experimental results in
principle.
One way to approach this problem is to choose a standard type of musical
performance that is considered improvisatory and compare its cognition with one
that is typically considered to be non-improvisatory, that is, playing from memory.
Making observations about the cognitive differences underlying these modes of
performance could help better define them and link them with more general
cognitive-scientific theoretical frameworks.
An experiment was conducted here with this comparison. Delayed auditory
feedback (DAF) has been shown to disrupt motor planning in piano playing by
interfering with perception-action links. Improvisation pedagogies promote a
strong link between auditory and motor functions perhaps making it more
vulnerable to DAF than memorized performance. A new experiment was
conducted which sought to determine whether DAF was more disruptive to
improvising than playing from memory.
Ten jazz pianists played bass lines over a standard chord progression with and
without DAF, and either from memory of improvising. DAF disrupted improvisation
more than memory as measured by fluctuations and drift in tempo. These results
suggest a promising way forward in making questions about improvisation
empirically tractable.

16:20-16:40 Break & poster viewing

16:40-17:40 ORAL SESSION 2
**Dr Alireza Tabatabaie, PhD in Education, University of Cambridge**

**Title:** Using sexual life stories in sex education research: a story about a story

**Abstract:**
This paper is a story about stories; a story narrated by an Iranian medical doctor and clinical sexologist who is conducting research on sex education as a PhD candidate at the Faculty of Education, University of Cambridge. I begin this story by narrating my journey from a medicalised and essentialist conceptualisation of sexual health and education, through the social sciences, and my arrival at an understanding that embraces a holistic bio-psycho-social approach and values young people’s lived experiences on their sexual lives through using their sexual-life stories.

Focusing on the United Kingdom, embedded within this paper is a critical reflection on the current practice of sex education in this country and lack of in-depth research in this regard. It invite using ‘life stories’ (particularly in this case ‘sexual-life stories’) as a qualitative research method that can deepen our understanding on issues related to sexuality, sexual health and education in young people, facilitate getting closer to knowing them, and be potentially therapeutic.

By bringing an example of the sexual life story of a young British Muslim male, this paper illustrates an approach that is attentive to the notion of time (the past, the present, and the future), reflects sequences and consequences, is sensitive to contextual issues and moves from personal to interpersonal and social and vice versa. I highlight the crucial role of informal sources of sex education (e.g. the family, the school, and the peer group) and the complex influence of cultural and religious issues in shaping the sexual life story of this young person. Having discussed the methodological productivity and advantages of this approach, I finally look at the disadvantages and the paper finishes by discussing the ethical considerations and issues around objectivity and validity.

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**Hazel Hartman, PhD in Geology, University of Cambridge**

**Title:** Tales told by sea salt in Antarctic snow

**Abstract:**
The concentration of sea salt in Antarctic ice layers might tell us past sea ice extent, but might also be influenced by meteorology. The ice-core salt record is useless without understanding why salt deposition varies. Antarctic sea-salt deposition shows a winter peak, which can be modelled by including sea-ice salt production.

We extend this work (using the p-TOMCAT model) to show that winds transporting salt poleward have a strong effect on deposition. Wind-caused variation in aerosol production is less important. We also show that salt travels consistent routes, so salt deposited in some locations comes mostly from specific areas of the Southern Ocean.

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**Richard Whiter, PhD in Material Sciences, University of Cambridge**

**Title:** Piezoelectric Polymer Nanowires for Energy Harvesting

**Abstract:**
Piezoelectric energy harvesting is the principle by which repeated straining of a piezoelectric material contacted at either end within a closed circuit allows, as a result of the direct piezoelectric effect, a transient current to run through the circuit which can be used to provide electrical power.

Ambient vibrations and other ubiquitous or application specific sources of mechanical energy could be utilised by providing a strain to piezoelectric materials allowing electrical power to be generated. This is of particular interest for
Early assessments do not show an obvious impact of the project on the use of facilitating communication with the population. Extra arms of the intervention focused on building trust within the health facility, approach consisted in training HFC members on their official mission and tools.

Burundi and South Kivu, DR Congo (n=270, including control group). The main/standard approach consisted in training HFC members on their official mission and tools. Extra arms of the intervention focused on building trust within the health facility, facilitating communication with the population, and sensitizing local leaders. Early assessments do not show an obvious impact of the project on the use of

17:16

Luisa Enria, PhD in International Development, University of Oxford

Title: Love and Betrayal: The Moral Economy of Political Violence in Sierra Leone

Abstract:

In postwar Sierra Leone, high levels of youth unemployment have been identified as a risk factor because of the connection often drawn between economic marginality and the likelihood of political violence. This presentation argues that the leap from unemployment to the projection of political consequences is analytically reductive; we need to better understand transmission mechanisms from one to the other. It therefore offers a discussion of how recruitment for violence on behalf of the country’s major political parties relate to labour market dynamics during an employment crisis. It reflects on the experiences of ex-combatants who have become mobilized as “security forces” for political parties, and their performance of violence and reactivation of wartime social networks as a means of securing a livelihood. This rests on an analysis of party youth’s moral economy, understood through the local concept of “love”, which reflects young people’s expectations of inclusion in redistributive networks.

17:28

Jean-Benoit Falisse, PhD in International Development, University of Oxford

Title: Social Accountability through Health Facility Committees: Experiments in Burundi and South Kivu, DR Congo

Abstract:

For decades now, community-elected Health Facility Committees (HFCs) have been a popular policy for improving health-care services in low-income countries. However, little is known of the impact of giving citizens a role in the management of their clinic.

This paper uses a mixed-methods experimental approach to answer a double question: what is the impact of functioning HFCs on services delivery and can social accountability be improved through external intervention?

A project for reinforcing HFCs was randomly implemented in clinics of rural Burundi and DR Congo (n=270, including control group). The main/standard approach consisted in training HFC members on their official mission and tools. Extra arms of the intervention focused on building trust within the health facility, facilitating communication with the population, and sensitizing local leaders. Early assessments do not show an obvious impact of the project on the use of
services (visits and deliveries). However, incremental changes in management (financial transparency) and the quality of services (queues, welcoming, financial access) are visible. Only the standard approach appears efficient; extra team-building activities could not fix enduring intra-HFC and HFC-medical staff conflicts and the idea of introducing joint HFC-local leaders meetings did not survive the progressive withdrawal of project facilitators. Functioning HFCs seem to increase social accountability in the sense of responsiveness rather than answerability. Stark differences between the Burundi and Congo cases lead to reconsider one-size-fits-all approaches and reflect on local cultures and history of power, authority, and representative democracy.

17:40-18:00 Poster session & judges’ deliberation

18:00 Dr Anna Bagnoli, Wolfson College Fellow, Associate Researcher, CU Dept. of Sociology

Title: Wolfson’s Worlds: An arts-based study with Wolfson students

18:15 Closing Remarks

19:00 Champagne and Canapé Reception

19:30 Formal hall dinner
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<td>Simin Zheng</td>
<td>PhD in Education, University of Cambridge</td>
<td>Self-repair in different ESL classrooms: a comparative case study</td>
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<td>Sahar Mansoor</td>
<td>MPhil in Land Economy, University of Cambridge</td>
<td>The role of mobile phone technology in Urban planning in India</td>
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<td>Hui Ben</td>
<td>PhD in Architecture, University of Cambridge</td>
<td>Energy efficiency and comfort practices: Behavioral segmentation in domestics buildings</td>
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<td>Laura Tan</td>
<td>PhD in Psychology, University of Cambridge</td>
<td>‘Abilities, Disabilities And Possibilities’ A Qualitative study exploring how to support students with co-occurring exceptional abilities and learning disabilities</td>
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<td>Yuanyuan Hu</td>
<td>PhD in Physics, University of Cambridge</td>
<td>Fabrication of Ultra-flexible, Ultra-thin Organic Field-effect Transistors and Circuits by a Peeling-off Method</td>
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<td>Li-Ching Wang</td>
<td>PhD, Center for Music and Science, University of Cambridge</td>
<td>Do listener’s body movements influence their perception of rhythm?</td>
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<td>Patrick Holden and Saadiq Moledina</td>
<td>Bachelor of Medicine, University of Cambridge</td>
<td>Should Antibiotics be Used as First Line Therapy for Acute Uncomplicated Appendicitis?</td>
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<td>Elizabeth Lockwood</td>
<td>PhD in Education, University of Cambridge</td>
<td>What issues pertaining to professional teaching identity are raised by the experience of becoming a parent?</td>
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<td>Toby Moncaster</td>
<td>PhD in Computer Science, University of Cambridge</td>
<td>Trevi – Watering Down Storage Hotspots in the Data Centre</td>
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<td>Antonia Symeonidou</td>
<td>PhD in Materials Engineering, University of Cambridge</td>
<td>Novel Bone Implant Coating: Magneto-mechanical actuation of mesenchymal stem cells (hMSC)</td>
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<td>Michael Wolfgang Müller</td>
<td>LLM, University of Cambridge</td>
<td>From Old MacDonald to Bank Resolution: How International Investment Law Is Becoming a Framework for International Financial Disputes and What That Means</td>
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<td>Laura Kemp</td>
<td>PhD Spanish and Portuguese studies, University of Cambridge</td>
<td>Victimhood and the Traumatic Tableau: cultural trauma in films about the Spanish Civil War</td>
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<td>Chloe Wallis</td>
<td>PhD in Neuroscience, University of Cambridge</td>
<td>Do sub-regions of the marmoset medial PFC differentially regulate a negative emotional response?</td>
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<td>Sahil Singh Gujral</td>
<td>PhD in Psychiatry, University of Oxford</td>
<td>Psychiatric Case History as Rhetorical Device: A Critical Reexamination of Three Leading Sources in the History of Autism</td>
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| **Stephanie Cohen**, PhD in Russian and Eastern European Studies, University of Oxford  
Title: Sovereign Democracy Enables Russia to Challenge the Legacy of American Normative Foreign Policy |
| **Rasha Rezk**, PhD in International Manufacturing, University of Cambridge  
Title: Crossing the Boundaries of Multi-Disciplinary Studies (Wolfson Interdisciplinary Research Club) |