

Postgraduate Research Conference

13 – 14 April, 2016



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» WELCOME

On behalf of the organisers here at the University of Surrey, I would like to welcome you to the 2016 Postgraduate Research Conference.



Professor Michael J Kearney

Vice Chancellor and Vice-President (Research & Innovation)

Taking part in the conference provides students with an opportunity to present their work and research results to colleagues and friends, to share thoughts and ideas and get advice from fellow researchers. It is also an excellent way to see what else is going on outside one's own immediate field of interest – very often this sparks ideas that otherwise might never have occurred in isolation. Many research problems require truly multidisciplinary solutions, an important lesson for all researchers to learn as their careers develop.

I recall my first conference and was gratified to find that other people were actually interested in what I was doing! Moreover, one gets an appreciation of the art of how to communicate research ideas effectively to others, either through presentations or through written words and diagrams, or through one-to-one conversation. As well as conducting high-quality research, an important component of researcher training is learning the skills of dissemination; again, the experience of attending the conference will be invaluable in this regard.

I would like to thank the organisers; they are themselves fellow researchers and postgraduates, and without their enthusiasm and dedication none of this would be possible. I look forward to seeing you at the Conference and I have every confidence you will remember this year's event as a valuable step in your research career.

» WELCOME

On behalf of this year's conference committee, I would like to extend our welcome to the 2016 Postgraduate Research Conference.



Julia Peetz

Chairwoman — 2016 PGR Conference Committee

The conference provides an opportunity to discover and engage with the remarkable breadth of research being conducted at the University of Surrey, to forge cross-disciplinary and inter-faculty connections as well as to deepen professional academic skills.

We received a large number of submissions, especially for oral presentations, and were truly impressed by the diversity and the general high standard these indicated. We also hope that our choice of five distinguished keynote speakers, who hail from disciplines ranging from theatre and interpreting to health psychology, computer science and nanomaterials, proves to be an inspiring one.

I would like to thank the members of our small committee — Jing Wang, Sapphira Thorne, Dalal Alamoudi and Laura Kent — for their commitment and enthusiasm in organising this enormous event.

We would also like to express our gratitude to the Researcher Development Programme team for their help and advice and to the Bright Club team, Katy Kennedy and René Brauer, for their support in putting together the evening entertainment programme.

We hope you find the 2016 Postgraduate Research Conference to be an exciting, intellectually and creatively stimulating event — welcome!

OUR VISION: A WORLD OF POSSIBILITIES

The 6th annual University of Surrey Postgraduate Research Conference provides a platform for postgraduate researchers to venture beyond their own discipline and explore alternative research areas, perspectives and philosophies. The conference is an opportunity for students to discover a world of possibilities, enhance their understanding of the depth and breadth of postgraduate research across the University of Surrey, and encourage the development of inter-faculty student communication and research networks.

We have three aims for the 6th Surrey Postgraduate Research Conference:

Inspire – Captivate and inspire the next generation of researchers to look beyond their own research and discover a world of possibilities both within and outside of their own field.

Network – Encourage cross-faculty networking, partnerships and collaboration. Assist in the formation of intellectual connections and the development of future collaborations for a new generation of researchers.

Discover – An opportunity to discover the wide range of research that is being conducted at the University of Surrey, and raise awareness of current opportunities existing both internal and external to the university.

Acknowledgements

We would like to thank the following people for their continued help and support throughout the process of putting this conference together.

Prof. Michael J. Kearney
Prof. Chris France
For their guidance and advice.

Guest Speakers

Prof. Richard Bowden
Prof. Robert Dorey
Prof. Vince Emery
Dr. Kevin Lin OBE
Prof. Jane Ogden
Prof. Alan Read

Researcher Development Programme

Dr. Dawn Duke
Dr. Carol Spencely
Dr. Sam Hopkins
Elizabeth Joseph

Peer Reviews

Dr. Alison Yeung Yam Wah
For recruiting reviewers and advice.
The Peer Review Team
For reviewing more than 150 submitted abstracts.

Hospitality Conference Catering Services

Charlotte Fox

PhD Supervisors

For encouraging your students to present their work.

Judges

For offering your time to judge the presentations and the 3-minute thesis competition.

Faculty PGR Directors

Prof. Bran Nicol
Prof. Richard Bowden
Dr. Debbie Cooke

The Bright Club Team

Katy Kennedy
René Brauer

As well as ...

Dr. Ilke Inceoglu
Dr. Patrick Duggan

Dr. Rachel Hann
Prof. Justin Edwards
Prof. Allan Williams
Dr. Jo Blanden
Hannah Berry
Alex Harden
Tessa de Keijser
Sean Ogilvie

For general advice and help with organising and recruiting.



» SCHEDULE WEDNESDAY, 13 APRIL

08:30-09:30	Registration – Lower Concourse
09:30-09:45	Opening: Prof. Michael J. Kearney – Griffiths Lecture Theatre (LTD)
09:45-10:45	Keynote Lecture: Dr. Kevin Lin OBE: “Re-interpret through research” – Griffiths Lecture Theatre (LTD)
10:45-11:00	Tea and coffee – Lower Concourse
11:00-12:00	Parallel Streams: Presentations sessions 1 and 2
Session 1: Griffiths Lecture Theatre (LTD)	Session 2: Lecture Theatre F
Richard Fields (FEPS): Optimisation of energy density in supercapacitors utilising organic electrolytes through electrode mass-balancing.	Scott Munro (FHMS): The use and impact of 12-lead electrocardiograms in acute stroke patients: Findings from a systematic review.
David Makepeace (FEPS): Designing Coatings: One Nanoparticle at a Time.	Alison Cooper (FHMS): The Effect of Sleep on Learning a Novel Artificial Language – ‘Brocanto’.
Louise Dummott (FEPS): The Use of Gold Nanoparticles and Spectroscopic Detectors in Contrast Enhanced Digital Mammography.	Sarah Lumley (FHMS): The effect of temperature on the replication of kinetics of Rift Valley fever virus in vertebrate and invertebrate cell lines.
Adam Bromley (FEPS): Biodegradable nanomaterials – the future of cardiovascular disease treatment?	
12:00-12:45	Keynote Lecture: Prof. Richard Bowden: “The Grand Unification of Vision?” – Griffiths Lecture Theatre (LTD)
12:45-14:15	Lunch – Lower Concourse
12:45-14:15	Poster Session 1 – Upper Concourse
14:15-15:00	Parallel Streams: Presentation sessions 3 and 4
Session 3: Griffiths Lecture Theatre (LTD)	Session 4: Lecture Theatre F
Nilay Kilinc (FASS): Return Migration of the Germany’s Turks to the Southern Turkey.	Mahado Ismail (FEPS): Drug Testing using a New and Portable Method - The Future of Drug Testing.
Athil Farhan (FASS): An Analysis of Ideology and Translational Shifts in Political Discourse: A Case Study of Presidential Speeches after the Arab Spring.	Sarah Bolger (FHMS): Systematic Review: How healthcare organisations are demonstrating organisational learning from complaints.
David Rozas (FASS): Talk is silver, code is gold? Contribution beyond source code in Free/Libre Open Source Software communities.	Louise Wilson (FHMS): Does vitamin D status decrease more rapidly, following a period of supplementation, depending on the form of vitamin D given: D2 VS. D3?
15:00-16:00	Keynote Lecture: Prof. Robert Dorey: “Making sense of research – then and now” – Griffiths Lecture Theatre (LTD)

16:00-16:30	Tea and coffee – Lower Concourse
16:30-17:30	Parallel Streams: Presentation sessions 5 and 6
Session 5: Griffiths Lecture Theatre (LTD)	Session 6: Lecture Theatre F
Kayleigh Telfer (FASS): Transforming or Dismantling Probation? A period of organisational and professional change in the Probation Service.	Daniel Reid (FEPS): Flexible, Fibre Based Batteries and Capacitors - Imagine Being Able to Charge Your Phone from Your Jacket!
Svenja Schlachter (FHMS): Why stay switched on for work? Work related technology use during non-work time and individual differences.	Ghulam Ahmad (FEPS): High Gain Millimetre Wave Antenna Solution for Next Generation Communication Systems.
Amel Ketani (FASS): Family mediation in England and Wales: do mediators, lawyers and clients know what to expect?	Ramesh Kumar (FEPS): Development of Simulation Method for aero-elastic analysis of high flexible wings.
	Laurence Stant (FEPS): Evaluating Measurement Uncertainty in Microwave and Terahertz Frequency Metrology.
18:00-18:30	3-Minute Thesis Competition – Griffiths Lecture Theatre (LTD)
18:30-19:00	Chilli and rice in Hillside Restaurant
19:00-21:00	Bright Club in Hillside Restaurant



» SCHEDULE THURSDAY, 14 APRIL

09:30-09:45	Opening: Prof. Vince Emery – Griffiths Lecture Theatre (LTD)
09:45-10:45	Keynote Lecture: Prof. Jane Ogden: “Do no harm – balancing the costs and benefits of patient outcomes in health psychology research and practice” – Griffiths Lecture Theatre (LTD)
10:45-11:00	Tea and coffee – Lower Concourse
11:00-12:00	Parallel Streams: Presentation Sessions 7 and 8
Session 7: Griffiths Lecture Theatre (LTD)	Session 8: Lecture Theatre F
David Southgate (FASS): The value of national difference on perceptions of identity between Scottish and English citizens post-independence referendum.	Nsikak Ulaeto (FEPS): Development of analytical and numerical assessment methods of structural robustness in reinforced concrete flat slab structures.
Ioulia Kazana (FASS): Transitions to adulthood in times of economic crisis: exploring family relationships among young Greek women.	David Collings (FEPS): Compressive Membrane Action in concrete slabs: Visualisation and simplification.
James Tutu (FASS): Corporate Governance Reforms Post 2008 Financial Crisis: An exercise of futility.	Elizabeth Saunders (FHMS): Metabolic analysis of solventogenic Clostridium saccharoperbutylacetonicum N1-4.
Melissa Pepper (FASS): Doing More for Less in Changing Times: The Use of Volunteers in Policing.	Laurie Little (FEPS): Crystallisation: Understanding the uncertain.
12:00-12:45	Keynote Lecture: Prof. Alan Read “Radical Inclusion and the Expansion of the Collective: Democracies of Performance and the Parliament of Plants” – Griffiths Lecture Theatre (LTD)
12:45-14:00	Lunch – Lower Concourse
12:45-14:00	Poster Session 2 – Upper Concourse

14:00-15:00	Parallel Streams: Presentation sessions 9 and 10	
Session 9: Griffiths Lecture Theatre (LTD)	Session 10: Lecture Theatre F	
Hannah Whitmore (FEPS): Curing blindness using homoisoflavonoid natural products.	Daniel Wilson (FASS): How can L2 pragmatic competence be comprehensively developed in the EFL classroom?	
Lorraine Ezra (FEPS): British Lichens as a Source of Novel Antibacterial Compounds with the Use of a Green Extraction Method.	Paraskevas Kipouros (FASS): Energy Demand and Energy Efficiency in Developing Countries: A Stochastic Frontier Approach.	
Ben Toovey (FHMS): Motor imagery shows enhanced priming effects compared to motor preparation: A cognitive hierarchy?	Shasha Zhang (FASS): Representing the “Real, New” China: Exploring Chinese Ideologies within China-Produced TV Documentaries and their Translations.	
Terry Willson (FEPS): Reverse Electrodialysis – A salty solution to the global energy crisis?	Tom Harper (FASS): The Sleeping Dragon Awakened: Understanding the Power Relations of the Competing Discourses on China in Africa.	
15:00-15:20	Tea and coffee – Lower Concourse	
15:20-16:20	Parallel Streams: Presentation Sessions 11 and 12	
Session 11: Griffiths Lecture Theatre (LTD)	Session 12: Lecture Theatre F	
James Edward Armstrong (FASS): Comfortably Numb: Environmental Numbness in Everyday Life.	Michael Osei (FASS): Against the odds: why do some young men resist joining gangs?	
Sarah Campbell (FHMS): Feeling the gap: Does interoceptive ability explain how the body responds to music.	Geraldo L Marques de Oliveira (FEPS): From Risk to Reward: a risk reduction strategy to support circular approach.	
Alex Harden (FASS): The Fantastic Worlds of Pop.	Shelley Watkinson (FEPS): Towards a Quantitative Method for The Detection of Drugs of Abuse (DoA) and their Metabolites in Fingerprints using Liquid Chromatography-Mass Spectrometry.	
Kim Starr (FASS): Thinking inside the Box: audio description for new audiences.	Panayiotis Kattou (FEPS): Mathematical modelling of transdermal pharmacokinetics: a mechanistic approach.	
16:30-17:15	Workshops	
	E-theses & open access publishing – Lecture Theatre B	
	Media relations, marketing and communications – Lecture Theatre J	
17:30-18:00	Closing and awards: Prof. Chris France – Griffiths Lecture Theatre (LTD)	



KEYNOTE LECTURES



Dr. Kevin Lin OBE: "Re-interpret Through Research"

Wed, 13 April, 9:45-10:45, Griffiths Lecture Theatre

Bio:

Dr Kevin Lin's work covers the full spectrum of UK-China relations from government, business to academia through a career spanning 20 years. He has interpreted for generations of UK Prime Ministers, business leaders and heads of leading academic institutions. He combines exceptional expertise in cross culture/language communication with a unique perspective on the political relationship between the UK and China. His company KL Communications co-delivers the MA Business Interpreting in Chinese at Surrey. His textbooks on interpreting have sold more than 150,000 copies in China. He was awarded an OBE in 2011.

Abstract:

There is probably more myth, misconception and misunderstanding about interpreting than any other profession. This talk is a practitioner's call for help from researchers. It will start with an overview of interpreting between English and Chinese at a leading service provider in the UK as a case in point (no knowledge of Chinese is required). It will highlight exciting potentials for cross-disciplinary research. It spans linguistics, psychology, sociology, engineering, product design, translation studies and artificial intelligence. Real life examples will be used to illustrate the disconnect between the reality of interpreting and the prevalent understanding of it. The multi-faceted nature of interpreting will become self-evident. The talk will end with a look at the prospect of computers replacing interpreters and translators – a charge led by the like of Microsoft and Google.



Professor Richard Bowden: "The Grand Unification of Vision?"

Wed, 13 April, 12:00-12:45, Griffiths Lecture Theatre

Bio:

Richard Bowden received a BSc in computer science from the University of London in '93, an MSc with distinction from the University of Leeds in '95, and a PhD in computer vision from Brunel University in '99 for which he was awarded the Sullivan Doctoral Thesis Prize. He is Professor of Computer Vision and Machine Learning at the University of Surrey, where he leads the Cognitive Vision Group within the Centre for Vision Speech and Signal Processing and was recently awarded a Royal Society Leverhulme Trust Senior Research Fellowship.

Abstract:

The area of computer vision has evolved considerably over the years. From its early routes in AI it has moved from engineering to machine learning. While datasets have become abundant and performance on specific tasks such as object or action recognition increase each year, there remains one fundamental truth: that machines cannot understand and reason about what they see in the way that humans do. This talk will look at the state of the art in computer vision not just from within my own research group but from the wider academic community covering topics such as tracking, object and activity recognition and interpreting the actions of humans. This talk will not propose a solution to unifying human/machine vision but attempt to stimulate discussion as to the common areas of research and those areas such as higher level reasoning, context and language which we take for granted and machines have yet to master.

KEYNOTE LECTURES



Professor Robert Dorey: "Making Sense of Research - Then and Now"

Wed, 13 April, 15:00-16:00, Griffiths Lecture Theatre

Bio:

Professor Robert Dorey holds the chair in Nanomaterials at the University of Surrey and is Fellow of the Institute Materials, Mining and Minerals (FIMMM) and Higher Education Academy (FHEA) as well as a Chartered Scientist and Engineer. Professor Dorey joined the University of Surrey from Cranfield University in 2014. Between 2003 and 2008 he held a prestigious Royal Academy of Engineering/EPSRC Research Fellowship.

Abstract:

Professor Dorey gained his PhD in 2000, was awarded his first chair in 2012 and took up the Chair in Nanomaterials at Surrey in 2014. Over this time the nature of his research has evolved to be one of the leading activities in the field. The research currently focusses on the design and manufacture of active devices incorporating functional nanomaterials. This talk will provide an overview of some of the latest developments in the design and manufacture of energy harvesting devices based in piezoelectric and thermoelectric materials.

Alongside a review of the current work, the talk will highlight how Professor Dorey's research has evolved from the days of his PhD, what helped to shape the nature of the research and how he has managed to continually evolve his research portfolio and maintain a thriving research activity.



Professor Jane Ogden: "Do No harm: Balancing the Costs and Benefits of Patient Outcomes in Health Psychology Research and Practice"

Thu, 14 April, 9:45-10:45, Griffiths Lecture Theatre

Bio:

Professor Ogden completed her PhD at the Institute of Psychology in London. This was followed by lectureships first at Middlesex University and then at Guy's and St Thomas Medical Schools. She joined the University of Surrey in 2005 and is the Director of the PhD Programme in Psychology.

Abstract:

The Hippocratic Oath to 'Do no harm' has underpinned medicine for many centuries yet much has been written about medical iatrogenesis. In the 1970's Health Psychology joined ranks with medicine with its aim to predict and promote patient health outcomes. This talk explores whether health psychology has also shown a form of iatrogenesis. In particular, it provides an analysis of research exploring medication adherence, help seeking, screening and behaviour change and argues that whereas interventions may have benefits they also all have potential to do harm. Further, it is suggested that (inadvertently) health psychology may have contributed to psychological harms in the form of lead times, anxiety, risk compensation and rebound effects, medical harms such as the side effects from medicines and unnecessary invasive interventions and social harms including financial costs to the individual and health care system and increased consultations rates. It is argued that these harms may result from the pressures of medicalization, pharmaceuticalisation and the media which have shifted the relationship between health psychology and medicine from one of critic to champion. It is also argued that these unintended consequences reflect a change in the way that risk, health and ultimately death are now conceptualised as entities that can be controlled. In summary, it is argued that harm is done (inadvertently) as the discipline becomes one with the medical paradigm. But it is also done as our sense of mortality has been lost and medicine has become the means through which even death can be avoided.

KEYNOTE LECTURES



Professor Alan Read: “Radical Inclusion and the Expansion of the Collective: Democracies of Performance and the Parliament of Plants”

Thu, 14 April, 12:00-12:45, Griffiths Lecture Theatre

Bio:

Professor Read writes, curates, publishes and broadcasts and is currently working on *Soul Estuary: The Mouth of the River* commissioned by BBC Radio 4, due to be broadcast in the Spring. Previous work he has written and presented for Radio 4 includes *Dreadful Trade* (2015) and *Plato's Cave* (2013). He is currently Professor of Theatre at King's College London. Prof. Read has been Director of the *Performance Foundation at King's* (2008-), founder and curator of *The Anatomy Theatre & Museum* (2010-) on Strand, and has conceived and developed the *Inigo Rooms* (2012-) in Somerset House. He was Director of Talks at the Institute of Contemporary Arts in the 1990s and, alongside David Slater, worked with Rotherhithe Theatre Workshop in the 1980s and directed the Council of Europe Workshop on Theatre and Communities in 1983 at Dartington College of Arts.

Prof. Read has a non-fiction publishing record including: *Theatre & Law* (2015) Palgrave, *Theatre in the Expanded Field* (2013) Bloomsbury, *Theatre, Intimacy & Engagement: The Last Human Venue* (2008) Palgrave, *Architecturally Speaking* (2000) Routledge, *The Fact of Blackness* (1996) Bay Press, *Theatre & Everyday Life: An Ethics of Performance* (1993) Routledge. And he has just completed his first novel: *The White Estuary (Man with the Reason of History Missing)*.

Abstract:

Professor Read's talk will address questions of what constitutes inclusive research, giving examples of ways in which he has institutionally explored participation. The lecture will then focus on his work with the Performance Foundation, which engages with the public realm through events, research and collaboration working with a range of artists and academic associates. In particular, Professor Read will touch on the Performance Foundation's project on a parliament of plants to provide a context for a conversation.

WORKSHOPS

Workshop 1

Thu, 14 April, 16:30-17:15, Lecture Theatre B

E-Theses and Open Access Publishing: Depositing and sharing your e-thesis

By Dr. Christian Gilliam, Digital Collections Officer for Surrey Research Insight

The process of submitting the final version of your thesis has changed. From 1st March 2015, all PhD students who have successfully completed their viva and have made any necessary changes to their thesis are required to deposit an electronic copy of the final thesis in the University's open access repository.

Making your e-thesis available open access has great benefits for your research profile. There are, however, several issues to consider, including copyright, IPR, and discoverability. In this course we will:

- Explain the new requirements
- Introduce the principles of open access, copyright and author rights
- Discuss cases where restriction to the thesis may be necessary

Sharing your thesis on open access requires you to think of these issues well in advance. This course is recommended for students who have just completed the confirmation process.

Workshop 2

Thu, 14 April, 16:30-17:15, Lecture Theatre J

Media relations, marketing and communications: Making headlines with your research — a whistle-stop tour of the world of media

By the University of Surrey Media Relations Team

Join the University's Media Relations Team to learn how your research could make international headlines across newspapers, online news and TV, and why talking about your work matters. From the Guardian to the New York Times, Huffington Post to BBC World Service, the Media Relations Team helps researchers share their achievements to audiences wide and far.

- What is media relations and why you should care?
- Learn about what makes the news, and how the news is made
- Understand the process of creating newsworthy stories, and how research can be presented to different audiences
- Learn how new media channels, such as social media can help you make an impact
- Meet the people who can help you hit the headlines, and what support is available

» EVENING ENTERTAINMENT: BRIGHT CLUB

Wed, 13 April, 18:30-21:00, Hillside Restaurant



Helen Arney — Bright Club Host

Science presenter and geek songstress Helen Arney has appeared on TV, Radio and in theatres across the world with her unique mix of stand-up, songs and science.

She holds a degree in Physics from Imperial College and has performed everywhere from Hammersmith Apollo to CERN in Geneva, toured the UK in "Uncaged Monkeys" with Robin Ince and Brian Cox, and taken her own award-winning solo show "Voice of an Angle" to the Edinburgh Fringe and London's Soho Theatre. Helen presents science on stage and on television, including BBC2 "Coast", Comedy Central "Stewart Lee's Alternative Comedy Experience", Channel 4 News, BBC Radio 5Live "Bacon's Theory" and as a lead presenter in "Outrageous Acts Of Science" on Discovery Channel.



Ben Champion — Bright Club Musician

Ben has spent the last 10 years of his life locked in a darkened studio writing music for cartoons and kids' telly. If you have kids under five, you've probably heard some of his songs. In fact, you're probably sick of them by now.

He's also written music for some grown up telly including Absolutely Fabulous and Channel 4 hit shows You Are What You Eat and Your Money Or Your Wife.

In 2011, Ben started writing comedy songs for adults, and began performing on the comedy circuit. He made his debut at the Edinburgh Fringe in 2013.

'Smart, funny and awesome in equal measure.' (Fringe Guru)
'A natural musician in complete control of the stage...
Champion's songs are clever, witty and utterly relatable, and the audience are very vocal in their approval.' (Broadway Baby)

Bright Club Performers:

René Brauer, PhD student in the Philosophy of Science
Maia Elliott, PhD student in Genetics
Alice Herron, PhD student in Psychology
Michael Hodgson, PhD student in Physics
David Makepeace, PhD student in Physics
Giacinto Palmieri, PhD student in Translation Studies

» MEET THE PGR CONFERENCE COMMITTEE



Julia Peetz (Chairwoman)

Julia is a first-year PhD student in Theatre, researching mediation and the theatricality of populist political rhetoric on a FASS scholarship. She holds a BA "with distinction" in English Philology and Political Science from the University of Göttingen and a rMA in Cultural Analysis from the University of Amsterdam.



Jing Wang (Deputy Chairwoman)

Jing is a first-year PhD student in the School of English and Languages. Her primary research interest is in empirical translation studies. Her PhD research investigates translators' information seeking behaviors in solving translation problems.



Sapphira Thorne (Secretary)

Sapphira is a third-year Psychology PhD student researching heteronormative perceptions and conceptualisations of romantic love. She graduated from a BSc in Psychology at the University of Surrey in July 2013, and proceeded straight to the PhD programme. Sapphira has presented her research several times at PGR Conferences, as well as presenting at national and international conferences.



Dalal Alamoudi

Dalal is a final-year PhD student in the department of Physics (FEPS). Her research focuses on dose enhancement near metal interfaces in synthetic diamond for X-ray dosimetry.



Laura Kent

Laura is a second-year PhD student in Chemistry. Her research focuses on doped nano particles in polymeric fibres for water purification.

POSTER PRESENTATION TITLES

Poster Session 1 (in alphabetical order by last name)

Wed, 13 April 12:45-14:15, Upper Concourse

	Surname	Forename	Faculty	Title
1	AlBreiki	Mohammed	FHMS	Is broad spectrum light associated with changes in insulin sensitivity?
2	Almahwasi	Ashraf	FEPS	A Cell-recognition MATLAB Code to Measure The Frequent Induction of Giant-nucleated Cells In The Progeny of Normal Human Fibroblasts After Exposure To X-irradiations In Vitro
3	Armstrong	James Edward	FASS	Why aren't we listening? Attentive Listening and its place in Environmental Psychology
4	Ashpitel	Henry	FHMS	Analysis of the Biological Effect of the 1920nm Endovenous Laser on the Great Saphenous Vein Wall
5	Bailey	Matthew	FEPS	Exploring Sleep-Wake Dynamics
6	Barber	Amy	FHMS	A Systems Approach To Targeting Breast Cancer
7	Berry	Thomas	FEPS	Investigation of states in collective neutron-rich nuclei using gamma and beta spectroscopy
8	Bolt	Matthew	FEPS	The Impact of Linac Output Variation on Clinical Outcomes
9	Browning	Alex	FEPS	Single photons from single atomic layers for quantum technology applications
10	Churches	Richard	FASS	The followership effect
11	Cook	Anna	FHMS	The experiences of learning, friendships and bullying of boys with autism in mainstream and special school settings: a qualitative study
12	Drinkwater	Rachel	FEPS	Wearable sensors for heavy metal detection - Could an armband save your life?
13	Felemban	Shaza	FHMS	The effects of Macrophage Polarization and Granuloma Microenvironment on the Macrophage Response to Mycobacterium tuberculosis
14	Fowler	Sam	FEPS	Indoor Scene Understanding
15	Gityamwi	Nyangi	FHMS	High BMI among adult haemodialysis patients at a UK hospital: an indicator of poor or adequate nutritional status?
16	Gonzalez	Valeska	FEPS	Influence of particle wettability and particle type on the emulsification and properties of Pickering emulsion stabilized by clay particles.
17	Heard	Hollie	FEPS	Coatings for Extreme Environments

18	Iseko	Acheinu	FASS	Social Networking Sites: A potential site for Emotional Labour?
19	Jaiyeola	Etana	FHMS	The effect of faecal water on Cell viability and intestinal permeability
20	King	David	FEPS	A Biomechanical Model for Lung Fibrosis in Proton Beam Therapy
21	Koshin	Sahra	FHMS	Does Campylobacter jejuni ged SAD?
22	Latzourakis	Evangelos	FHMS	"Cypriot nurses' perceptions on their role in the care of patients with CKD including the education of these patients to self-manage their condition"
23	Mendes	Marcela	FHMS	Vitamin D Supplementation In Brazilian Women Living In Opposite Latitudes (The D-Sol Study)
24	Mendez	Oscar	FEPS	Autonomous Collaborative Mapping via the Scenic Route
25	Milano de Souza	Larissa	FHMS	Elucidating the role of alkylation DNA damage repair in the response of glioblastoma cells to radiotherapy
26	Nikitara	Monica	FHMS	How could diabetes inpatients care best be provided by nurses in Cyprus: Preliminary Results
27	Norhashim	Nurhakimah	FEPS	Temperature dependence of zinc nitride samples
28	Shearer	Linzi	FEPS	Food waste recycling: a problem unstuck
29	Smith	Taryn	FHMS	Prevalence Of Vitamin D Deficiency And Insufficiency In Uk Adolescents And Factors Associated With Low Vitamin D Status
30	Stenzel	Hanne	FEPS	Comparison of methods for measuring the perception of an ecologically valid audio-visual stimulus
31	Thirimanne	Hashini	FEPS	Electronic inks for real time radiation monitoring
32	Thurlow	Claire	FASS	Narrating the Past
33	Totti	Stella	FEPS	On The Design Of An In Vitro Model System For The Optimization Of Ex Vivo Studies Of Pancreatic Cancer
34	Vanoni Matta	Fernanda	FEPS	Chemical Analysis of Trace Elements in Yerba Mate
35	Wilson-Barnes	Saskia	FHMS	The D-BIICEP Study: The interrelationship between Vitamin D, Bone, Injury, illness and its impact upon Exercise Performance

POSTER PRESENTATION TITLES

Poster Session 2 (in alphabetical order by last name)

Thu, 14 April 12:45-14:00, Upper Concourse

	Surname	Forename	Faculty	Title
36	Aguiar	Joao	FEPS	Flow and noise control of blu bodies using metal foam
37	Al Shaqsi	Aflah	FASS	The Psychological Contract of Talented Employees; What's in a relation?
38	Alsaeedi	Nada	FHMS	Antioxidant Properties of Blueberries
39	Alyahyawi	Amjad	FEPS	Investigation of silica-based TL media for x-ray dosimetry
40	Cawthorne	Natalie	FASS	A Modern Tale in Medieval Frame
41	Dauda	Suleman	FASS	Residents' perceptions and attitudes towards urban solid waste management in the Berekum Municipality, Ghana
42	Davidson	Rebecca	FEPS	Onboard Data Processing For Downlink Optimisation
43	Dayour	Frederick	FASS	Why they consume indigenous food and beverage in Ghana; the international tourist perspective
44	Delfani	Jaleh	FASS	Authorized and Unauthorised Subtitling in Iran
45	Dharmasena	Ishara	FEPS	Powering Smart Textiles – A step towards next generation smart clothing
46	Godleman	Anna	FEPS	Uncovering multiple narratives of local energy generation - a study of community energy in the UK, Germany and Denmark
47	Golding	Sarah	FHMS	Exploring vets' and farmers' beliefs about prudent antibiotic use
48	Isherwood	Cheryl	FHMS	Branched chain amino acid and acylcarnitine rhythms in men with obesity and type 2 diabetes
49	Ismael	Mohammed	FEPS	Therapeutic potential of nucleolar targeting in solid cancers
50	Jaafar	Maisarah	FEPS	Determination of Molybdenum in Water – Inter-analytical Method Comparison using ICP-MS and GFAAS
51	James	Emily	FEPS	Transforming tree bark to treat grapevine downy mildew (Plasmopara viticola)
52	King-Okoye	Michelle	FHMS	How Tobago men experience and make sense of bodily changes related to prostate problems
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57	Leung Pah Hang	Melissa Yuling	FEPS	Designing integrated local production systems: a study on the food-energy-water nexus
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60	Mendes	Marcela	FHMS	Association Between Adiposity And Vitamin D Status In Premenopausal And Postmenopausal Caucasian Women - Results From The D-Fines Study
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ORAL PRESENTATION ABSTRACTS

(In alphabetical order by last name)

Author: Ahmad, Ghulam

Faculty: FEPS

Title: High Gain Millimetre Wave Antenna Solution for Next Generation Communication Systems

Recently, the millimetre wave spectrum (30-300GHz) is being keenly considered by the research community to enable the next generation multi-Giga bit wireless networks to support emerging applications. Advanced antenna technologies are one of the key aspects being explored for these futuristic networks. At mm-waves due to a multitude of propagation impairments and under strict transmit power constraints, the antenna gain becomes one of the primary determinants of reliable communication link operation. To achieve higher antenna gains at mm-waves present significant challenges due to increased losses in the array feeding networks. This article presents a potential candidate solution to high gain mm-wave antenna. High antenna gain is realized by preserving the most favourable aspect of reflector and phased array antenna technologies. As a result our antenna design called reflect-array antenna can provide significantly higher gain at lower losses while still offering low profile compact solution at a lower cost. Multiples of such antennas will combine to form a massive antenna structure at a base station to implement beam division multiple access which in turn will enable multi-Giga bit rates and provide the connectivity for billions of smart devices to realize internet of things, wireless transmission of 3D ultra-high definition videos, real time robotic operations and may other emerging applications to be commercialized yet.

Author: Armstrong, James Edward

Faculty: FASS

Title: Comfortably Numb: Environmental Numbness in Everyday Life

'Environmental numbness' is a phenomenon of growing interest within academic research in fields concerning environmental experience and perception. This is particularly relevant in today's society due to the widespread use of smartphones, tablets, and personal music players, which distract from aspects everyday experiences. However, the concept of environmental numbness has yet to be brought into dialogue with studies of music. Recent studies towards environmental perception reveal listeners' attempts to 'aestheticize' their surroundings (Yamasaki, Yamanda, & Laukka, 2015), and show efforts to enhance everyday experiences with a private, personalised 'soundtrack' (Barns, 2014). These attempts can create a unique interaction between music and space, colouring the listener's perception of the music and surrounding environment (Herbert, 2011; Beer, 2007), and even replace the sounds within an environment completely (Kelman, 2015).

The aims of this paper are three-fold: first, environmental numbness is discussed as an emerging phenomenon in relation to the current use of personal multi-media devices; second, an understanding of what it means to sound-track an environment or experience is developed; and third, it is demonstrated what information can be gathered about an

environment through active listening. From this, it is argued the concept of environmental numbness offers crucial insight into how music may be used to alter environmental experience.

Author: Bolger, Sarah

Faculty: FHMS

Title: Systematic Review: How healthcare organisations are demonstrating organisational learning from complaints

Patient complaints concerning healthcare experiences are valid indicators of care that can be improved. There are also clear recommendations by parliamentary and national guidelines concerning the missed opportunity from learning from patient complaints by healthcare organisations.

Aim: Systematically review the literature examining how healthcare organisations are demonstrating organisational learning from patient complaints.

Methodology: This review will follow an adapted version of the SPIDER tool.

Methodological qual.: A 'Mixed Methods Appraisal Tool' (MMAT) will be used. Only studies that achieve 50% or above qualify for the review.

Inc. criteria: Those that comply with the SPIED criteria

Data from comparable healthcare organisations within the developed world. All methodologies will be included.

Data Collection: Education and healthcare databases such as MEDLINE and EMBASE.

Analysis: 17/29 studies were sourced and assessed against MMAT at 50% or above by the main researcher, 2nd reviewer and adjudicator. Using meta-ethnography the researcher and one other will analyse the data for common themes.

Key findings: This systematic review is at the analysis stage but the themes are likely to cover

- Reluctance to engage in learning from complaints by staff, especially the medical staff
- No consistency or standardisation
- Organisational culture unsupportive of the patient's voice
- Opportunities lost to share learning from complaints across staff groups

Author: Bromley, Adam

Faculty: FEPS

Title: Biodegradable nanomaterials – the future of cardiovascular disease treatment?

Cardiovascular disease (CVD) is a major healthcare issue, accounting for 40% of deaths in the UK and 30% globally. While there are many associated risk factors, one key area is diet and our intake of cholesterol. Currently, a class of compounds called statins are used to help lower blood cholesterol however side effects mean they are not always well tolerated and cannot be prescribed to many of the patients who would benefit from them the most.

The research presented looks to address the issue by using polymer therapeutics to selectively target and remove cholesterol straight from the blood. Polymer therapeutics is a growing field that uses polymers to improve efficacy and stability, whilst still

maintaining the effectiveness, of therapeutic agents. We are currently building on previous work in our group using self-assembling biodegradable polymers to produce the next generation of these nanomaterials. Using a technique known as RAFT polymerisation we are able to produce polymers with precisely controlled chain lengths. Such precision is critical in developing an effective system and allows us to influence bulk characteristics such as the structure of the nanomaterial, its stability and solubility.

Author: Campbell, Sarah

Faculty: FHMS

Title: **Feeling the gap: Does interoceptive ability explain how the body responds to music?**

Emotion involves a relationship between what the mind interprets (subjective self-report) and what the body experiences (objective physiology). Music listening is a common emotion regulation tool, therefore to use music therapeutically it is imperative to understand how music influences an individual, both subjectively and physiologically. Studies present inconsistent findings regarding the relationship between physiological and self-reported music-evoked emotion. This disparity between subjective awareness and physiological response may vary as a function of interoceptive ability. The aim of this study was to investigate whether interoception mediates the disparity between physiological and subjective emotional response to music. An alternative explanation the study tested was whether the variable results in the previous literature can be explained by methodological inconsistencies. This study employed a repeated-measures experimental design on one hundred participants. Interoceptive ability and music-evoked emotion were measured subjectively and objectively, using heart rate, skin conductance and facial Electromyography. Music captured the four quadrants of a dimensional model of emotion. Results discuss the role of interoception in explaining how the body responds to music, comparative to the mind.

Author: Collings, David

Faculty: FEPS

Title: **Compressive Membrane Action in concrete slabs: Visualisation and simplification**

Arching action due to geometry has been used in architecture for millennia to carry loads. Over a century ago the testing of slender reinforced concrete slabs by the pioneers of the material showed that they could carry significant loads. Since that time the knowledge from other tests shows that internal arching, or compressive membrane action (CMA), enhances the strength compared with standard bending theories. However, there is still no comprehensive or internationally accepted model for the behaviour of restrained or part restrained reinforced concrete elements. Consequently the design or assessment of structures utilising CMA is largely empirical, and based on a limited range of geometry and material properties. As part of a research project at Surrey, a database of tests in which CMA may influence strength has been collected and analysed. The beneficial effect of CMA is that it reduces materials, costs and the carbon footprint of concrete structures. Methods of taking CMA into account have developed over the last 50 years; however, the methods are too complex and have a high degree of uncertainty to be used in practice. As part of a project to visualise, simplify and extend practical methods for design a series of Non-linear

Finite Element simulations is being carried out. The project is also developing simpler methods and proposing tentative clauses for incorporation into bridge design codes.

Author: Cooper, Alison

Faculty: FHMS

Title: **The Effect of Sleep on Learning a Novel Artificial Language – ‘Brocanto’**

Sleep influences learning by remodelling memory to improve efficiency. Procedural learning involves sequences of operations and benefits from immediate sleep, while declarative is content based and benefits from time awake before sleep (Holtz et al, 2012). The effect of sleep on learning the novel artificial grammar ‘Brocanto’, presented in declarative or procedural format was investigated. Participants completed two learn/test sessions at different intervals relative to normal night time sleep. Overall performance on a receptive grammar test was significantly better with delayed sleep, 3pm learning, and a 24 hour interval. Both procedural and declarative learning are highest here, indicating that optimal performance involves both. With no sleep and a 12 hour interval, performance for declarative learning is significantly higher than procedural. This is reversed for procedural learning with immediate sleep. It is not possible to completely separate the effect of time of day from sleep, lack of significant differences according to time of day suggests an active role for sleep. Performance on an expressive written test is significantly better with a 24 hour retention interval, regardless of sleep condition and time of day, especially with procedural learning. This also seems to require a period of time awake after sleep. A range of sleep measures, actiwatches and cognitive tests found no confounds. Future studies will investigate the key brain networks using fMRI.

Author: Dummott, Louise

Faculty: FEPS

Title: **The Use of Gold Nanoparticles and Spectroscopic Detectors in Contrast Enhanced Digital Mammography**

In mammography, low energy X-rays are used to image the breast. Its performance is significantly reduced when imaging dense breasts as features indicative of cancer may be masked. Intravenous Injection of iodinated contrast agent, which is taken up most in areas with high blood supply, can highlight cancerous lesions. However, as the image background is often cluttered with overlaying structures, contrast agent alone is not always sufficient. This has led to the development of background removal techniques post-acquisition. This involves combining images at two different energies, above and below the K-edge of iodine. On conventional detectors, this requires two mammograms, implying increased dose. This project applies such techniques using an alternative, spectroscopic detector which records the energy of detected X-rays. By integrating appropriate energy windows, multiple images can be obtained from one acquisition, reducing dose and eliminating patient movement between exposures. Gold nanoparticles (AuNps) are also investigated as an alternative contrast agent. They allow greater X-ray absorption than iodine and can be made to preferentially accumulate in specific cell types. AuNp properties are yet to be fully understood. To determine the effects on cells of AuNps and X-rays, cell-survival will be assessed by growing cells in culture after irradiation. Presented here are initial background removal using iodine, detector characteristics and preparations for cell-survival.

Author: Ezra, Lorraine

Faculty: FEPS

Title: British Lichens as a Source of Novel Antibacterial Compounds with the Use of a Green Extraction Method

Antibiotics are used regularly in both human and veterinary medicine, overuse of antibiotics has led to resistant strains of bacteria. This increases demand for new antibiotics, to combat resistant strains. There are many modern medicines that have been isolated from plants. A common example is willow bark, which contains acetylsalicylic acid, known as Aspirin and has been used as a pain killer for hundreds of years. Lichens exist in a symbiotic relationship between fungi and algae and/or cyanobacteria. Lichens grow in some of the harshest environments in the world, due to this adaption it is assumed that they will have metabolites which have antibacterial activity.

The process of extracting compounds from natural products, such as lichens, usually involves the use of large quantities of toxic solvents and is time consuming. In this project the use of natural deep eutectic solvents (NADES) such as choline chloride:glucose mix with microwave assisted extraction (MAE) has been tested to overcome some of the drawbacks of traditional extraction, on the extraction of compounds from lichens. NADES are biodegradable, have a reduced toxicity and are not flammable, so are preferable to common solvents such as dichloromethane which is a flammable, carcinogenic, toxic solvent. MAE has been used to replace traditional extraction in recent years and its benefits over traditional extraction are always consistent (increased extraction efficiency, reduced solvent quantities and time taken).

Author: Farhan, Athil

Faculty: FASS

Title: An analysis of Ideology and Translational Shifts in Political Discourse: A Case Study of Presidential Speeches after The Arab Spring

Advances in computers have revolutionized Corpus Linguistics. Texts, which could only be partially examined, due to size, can now be quickly scanned for specific linguistic elements. The present paper focuses on investigating the manipulation of the source-text ideology in the translation of political texts, by means of corpus tools and critical discourse analysis. The analysis focuses on such features as shifts in lexical choice, semantic prosody and cohesion patterns. The source texts analysed in this paper are 20 speeches of the former Egyptian president Morsi translated by five translator of various ideological background. The speeches selected for the analysis focuses on issues related to domestic policy and delivered by Morsi inside Egypt, and in local Egyptian events and occasions. The aim of the study is to ascertain whether the lexical choice and the syntactic structures employed in the target texts engender changes in the ideological content of the source texts and its underlying ideology. Given the nature of the source texts and the ideology underlying them and the possibility of ideological clash that is highly to result in a manipulation on the sides of the translators, the results reveal, that two of the translated texts fall within the category of partial mediation, projecting a manipulated ideology to a target-text audience.

Author: Fields, Richard

Faculty: FEPS

Title: Optimisation of energy density in supercapacitors utilising organic electrolytes through electrode mass-balancing

Current generation supercapacitors (SCs) are generally considered satisfactorily power dense but lack sufficient energy density to warrant use in mainstream applications. The study presented investigates the possibility of increasing the mass specific capacitance of SC cells utilising an organic electrolyte through balancing of the electrode mass ratio to in accordance to the electrolyte ionic radii ratio.

It has been previously found in SCs utilising a TEA-BF₄/acetonitrile electrolyte that positive TEA and negative BF₄ ions attribute a differing capacitance for the same active material pore size distribution. Additionally it has been found that the ionic radii ratio of BF₄ to TEA has been found to be 0.52. It was thus possible to postulate that BF₄ ions, with their smaller size and higher capacitance, will require less positive electrode surface area in order to achieve a capacitance equal to that of the negative electrode. In this study, cells with symmetric and asymmetric electrode mass ratios at varying degrees of positive and negative electrode mass ratios were tested in order to assess the validity of this postulation. The results of this study found total cell capacitance could be maintained between cells of symmetric electrode mass ratio and those with a positive heavy electrode mass ratio. Cells with a negative heavy mass ratio were found to have a lesser capacitance which can be attributed to the increased charge density on the positive electrode surface area.

Author: Harden, Alex

Faculty: FASS

Title: The Fantastic Worlds of Pop

Throughout studies of narrative and storytelling, it has long been recognised that stories afford the experience an alternative world, whether or not it corresponds with the actual world around us here and now. This can be seen throughout a variety of media: such possible worlds range from Shakespeare's dark vision of Denmark in Hamlet, and the galaxy far far away of Star Wars, to the supposedly effortless perfection of beauty advertising. The capability of songs to afford such possible worlds, though, has received unfortunately little attention.

To address this gap, I draw from theories of cognitive narratology, the study of interpreters' comprehension of stories, to explore its compatibility with recorded popular song. More particularly, I shall discuss ways in which songwriters and producers encourage listeners to not only suspend disbelief but engage with alternative, fantastic worlds. In my concluding remarks, I argue that the humble popular song offers much to not only the field of music analysis, but also to narratology.

Author: Harper, Tom

Faculty: FASS

Title: The Sleeping Dragon Awakened: Exploring the Depictions of China in Africa

Over the past decades, the growing relationship between China and Africa has become one of the major areas in the study of Chinese foreign policy, often entailing economics and development as well as political studies. This has been subject to numerous interpretations with the traditional Western narrative depicting China as an exploitive power seeking

to control Africa's natural resources in order to further China's economic development. Indeed, this view has also led to fears of a new rivalry between the West and China over Africa as well as claims that China is following the same path as the European empires of the 19th century. However, the traditional narrative has also been subject to increasing criticism as the new Chinese narrative, rooted in China's historical experiences, seeks to challenge the dominant Western depiction of China's engagement in Africa.

Therefore, the purpose of this study is to utilise Foucault's theory on the creation of knowledge along with Bourdieu's concept of symbolic power and "legitimate culture" in order to examine the creation of the Western and Chinese discourses on Chinese policy towards Africa. This will entail an examination of the choices of terminology made by Western and Chinese theorists as well as an exploration of the experiences that shape these depictions, most notably the Cold War and China's imperial past. These concepts will be applied to the case study of Sudan, often cited to be the epitome of the worst excesses of China's Africa policy in order to explore how the competing depictions of China in Africa illustrate the power relations between China and the United States in order to show how the two different narratives conflict as well as how they are created.

Author: Ismail, Mahado

Faculty: FEPS

Title: Drug Testing using a New and Portable Method - The Future of Drug Testing

There has been a growing interest in the use of ambient mass spectrometry techniques for surface analysis of many types of samples. An advantage of these techniques is that it provides rapid analysis of samples without the need for extensive sample preparation steps. A new method for surface analysis, in which analytes are extracted under pressure from a substrate and passed through a chromatography column for separation was utilised. This method was used to demonstrate the potential application for the analysis of various samples, including oral fluid and urine, for drug testing purposes. Cocaine and its respective metabolite have been detected in samples obtained from individuals attending a rehabilitation clinic for drug dependency. Results showed that cocaine and respective metabolite could be detected in a very small sample (10 µl). The advantage of this new method is that it is an easy and automated analysis without the need for sample preparation. More importantly it is compatible with a compact mass spectrometer, thus making it possible to have it on-site for analysis. This method for surface analysis could potential be used for roadside drug testing (i.e. back of a police van), workplace drug testing and in health care. The surface analysis technique can also be applied to other types of samples, including the analysis of organic molecules on thin layer chromatography plates and a range of other flat surfaces by using mass spectrometry.

Author: Kattou, Panayiotis

Faculty: FEPS

Title: Mathematical modelling of transdermal pharmacokinetics: a mechanistic approach

The aim of this project is to implement a general purpose in-silico mathematical model that can simulate the transdermal permeation effects of topically applied solutes penetrating into the skin and ultimately into the blood circulation.

Transdermal permeation and absorption is modelled as a dynamic process of mass transfer

in the heterogeneous stratum corneum, viable epidermis and dermis including the tortuous lipid pathway, the transcellular corneocytes pathway and the follicular pathway.

The originality of the study as well as the primary technical contribution resides in the integration of a state-of-the-art 2D skin penetration model, considering the hair follicle as an important penetration route, and the equations for system circulation kinetics.

Remarkably, the mass transfer properties of solutes are calculated using fundamental equations based on their physio-chemical composition and basic transdermal characteristics collected from existing literature. Essentially the model is fully predictive with no need of fitting to penetration data.

The developed model is demonstrated through simulating an in-vivo study of transdermal application of caffeine into skin with and without hair follicle blocking (Otberg et al 2007). Caffeine plasma concentration-time profiles show remarkable prediction achieved. This project is funded by the BBSRC, the Royal Academy of Engineering and Unilever.

Author: Kazana, Ioulia

Faculty: FASS

Title: Transitions to adulthood in times of economic crisis: exploring family relationships among young Greek women

Since the economic crisis in Greece in 2008, a vast array of structural changes have impacted on a host of social institutions and practices. One such feature of Greek society which has been impacted significantly has been young people's transition to adulthood, held back as a result of dwindling welfare support, and high unemployment/low wage work. A crucial manifestation of these challenging times has been the impact on parents and families more generally to support their children, many of which are aged in their 20s and 30s. This poses a number of challenges for young adults to develop a sense of independence both material and emotional. Drawing upon qualitative research conducted with Greek women in Athens and Thessaloniki, this paper will assess the extent to which family life alters their everyday interactions with their families. Four particular areas will be focused upon: strain at home, financial and emotional support/dependence, leaving the parental home, and relational comparisons with different countries and generations.

Author: Ketani, Amel

Faculty: FASS

Title: Family mediation in England and Wales: do mediators, lawyers and clients know what to expect?

Background:

Alternative dispute resolution refers to the various ways of settling a dispute that avoid the parties going to court. Sometimes a third party, such as a mediator, can be brought in to resolve the disagreement. Since April 2014, mediation was made compulsory in family law disputes in England and Wales. Nonetheless there are concerns regarding the standards and lack of regulations in this respect. The lawyers' codes of conduct are practically silent in relation to family mediation and do not provide clear and precise assistance to lawyers on how to deal with mediation and how to assist their clients in selecting and being involved in mediation.

Methods and Analysis:

This thesis will start by considering the historical development of mediation and in

particular the theoretical framework of family mediation in England and Wales. Both quantitative and qualitative research approaches will be considered. Interviews and questionnaires will be transcribed verbatim and analysed using Thematic Analysis.

Implications:

This research will provide a valuable understanding on how to develop, maintain, reinforce standards of competence and ensure the effective regulation of family mediation, as numbers of mediators increase.

Author: Kilinc, Nilay

Faculty: FASS

Title: Return Migration of the Germany's Turks to the Southern Turkey

The Turkish labour migration to Germany has evolved into 4 generations in the last 55 years. However, the number of Turkish resettling in Turkey has been rapidly increasing. This research uses a lifestyle-migration lens to explore the 'return' of the second generation to their parents' country of origin. The research location is Antalya, where the 'returnees' try to pursue their project of living a 'better life'. The research aims to understand motivations for return and lifestyle choices after re-settling. The research adopts semi-structured, in-depth interviews to capture the life-story narratives of the returnees. Thematic analysis is the method of analysis. The research's goal is to contribute to migration studies literature, firstly by using the term "lifestyle migration", challenging the assumption that economic factors per se dominate individuals' migratory trajectories. Secondly, by introducing lifestyle motivations, the research points to the emergence of deconstruction and reconstruction of "return migration" theorisations. Focusing on a touristic region, the research bridges tourism and migration disciplines in explaining individuals' lifestyle decisions based on their perceptions of places. Finally, the interplay between the self and place is explored through the individuals' economic and non-economic activities to investigate how they sustain their lifestyle choices, with the goal of changing the paradigm of evaluating migration as a finalised project.

Author: Kipouros, Paraskevas

Faculty: FASS

Title: Energy Demand and Energy Efficiency in Developing Countries: A Stochastic Frontier Approach

The aim of this study is to measure the level of the 'true' energy efficiency for the whole economy of 40 developing countries using stochastic frontier analysis. A national aggregate energy demand function is estimated using panel data for 40 developing economies over the period 1989 to 2008. The analysis confirms that energy intensity can not be considered as a de facto standard indicator of energy efficiency. While, by controlling for a range of socio-economic factors, the measurements of energy efficiency obtained by this study are more appropriate and hence it is argued that this analysis should be undertaken to avoid potentially misleading advice to policy makers. This is, as far as is known, the first attempt to model energy demand and energy efficiency in developing countries in this way and it is arguably particularly relevant in a world dominated by environmental concerns, especially in the aftermath of the Paris agreement in December 2015.

Author: Kumar, Ramesh

Faculty: FEPS

Title: Development of Simulation Method for aero-elastic analysis of high flexible wings

Traditionally, stiffened wings have been used to avoid aero-elastic phenomena such as flutter and buffet. Higher wing stiffness leads to increase in the weight of the wing, which is undesirable for aerospace application. There is currently considerable interest in aircraft designs with highly flexible wings.

Advanced computational fluid dynamics is being investigated for analysis of the flutter dynamics problem, in which an aircraft wing enters into pitching oscillation with large deflection. In the current research a methodology has been developed to simulate flow over a moving/deforming body. The NACA0012 aerofoil has been used for the evaluation of the current approach as experimental data is available for this case. The flow over an aerofoil which was pitching from 5° to 25° at a reduced frequency of 0.25 and Reynolds number of 1×10^6 was modelled and results are compared with published experimental results.

Many researchers have studied the effect of reduced frequency, mean and amplitude angle of attack, compressibility at lower Reynolds number (10^4 - 10^5). The current method will be used to study the effect of parameters such as reduced frequency, mean and amplitude of angle to attacks and Mach number at higher Reynolds number (10^6). Further extension of the method to include coupling with a dynamic structural model and evaluation of the model for further test cases and potential applications is planned.

Author: Little, Laurie

Faculty: FEPS

Title: Crystallisation: Understanding the uncertain

Crystals can be found all around us in the everyday world, from ice in the clouds above us, to drugs like aspirin, to the table salt we put on our food. Crystallisation, despite being a fundamentally important process, is not well understood. The crystallisation process determines: the crystal structure of the formed crystals, the number of crystals formed, and the time crystallisation may take to occur. Our aim is to better understand and control the crystallisation process. In our experiments, we look at the crystallisation of the amino acid glycine from solution. Glycine can crystallize into two different structures, which we call 'alpha' and 'gamma'. We simultaneously observe 96 identical glycine solution samples with video analysis and record the time taken for crystallisation in each case. We use X-Ray Diffraction and Raman Spectroscopy to show that the gamma structure of glycine always crystallises after a lag time while the alpha structure often crystallises nearly instantly after initiating an experiment. We also find adding sodium chloride to the solution increases the amount of gamma crystallisation while inhibiting alpha glycine crystallisation.

Author: Lumley, Sarah

Faculty: FHMS

Title: The effect of temperature on the replication kinetics of Rift Valley fever virus in vertebrate and invertebrate cell lines

Rift Valley fever virus (RVFV) is a pathogen of veterinary and public health importance causing widespread abortions and mortality in ruminants and a febrile illness in humans;

severe in 1% of cases. Endemic throughout Africa, its introduction to the Arabian Peninsula in 2000 demonstrates its ability to cross geographic barriers and establish in previously non-endemic regions raising concerns for its introduction into Europe. Virus is maintained in a transmission cycle between its mosquito vector and mammalian hosts. Temperature is fundamental when considering the transmission potential of temperate mosquito species in Europe. Genomic mutations within the virus could lead to adaptation promoting survival.

We studied the effect of temperature on growth kinetics at 12C and 20C in mosquito cells and 28C and 37C in mammalian and mosquito cells. Infectious viral particles were quantified by plaque assay and genome copies by qRT-PCR. RVFV replicated at all temperatures however reduced temperatures correlated with an increased latent period and lower titres. To investigate mutations associated with temperature, we developed an NGS strategy utilising 4 PCRs to amplify the tripartite genome. A single amplicon for the complete small (S) and medium (M) segments and 2 overlapping amplicons for the large (L) segment. This technique was applied to sequence strains of RVFV and will be utilised to monitor sequence variation associated with reduced replication observed at lower temperatures.

Author: Makepeace, David

Faculty: FEPS

Title: Designing Coatings: One Nanoparticle at a Time

Coatings, adhesives and inks (amongst other things) can be made from tiny, spherical plastic particles dispersed in water. These particles have a diameter about the same as one hundredth the width of a human hair. When a wet coating is spread on a surface, water is lost through evaporation and the particles come close together and pile up to form, ideally, a dense layer. The process results in a useful coating.

The advantage of this kind of coating is that it emits no solvents, therefore it is environmentally friendly and non-hazardous to health. The difficulty when designing these coatings is that they can be too brittle or too soft. They can also develop air holes between the plastic particles, which results in air or water being able to pass through the coating.

It is very desirable to control the properties of these coatings so they can be used for specific industrial uses. In this work we show how coatings can be designed by blending different nanoparticles together to exploit the properties of both particle types. We also show how we can change the properties of the coatings by changing one of the nanoparticles size.

We use a very powerful microscope to look at the surface and inside of these coatings, and we can see how different types of nanoparticle pack together and make different structures. We also stretch and break the coatings to investigate their properties and show how we can design desired properties.

Author: Marques de Oliveira, Geraldo L

Faculty: FEPS

Title: From Risk to Reward: a risk reduction strategy to support circular approach

Brazil commit to ambitious goals at the Paris COP21 meeting towards a zero absolute greenhouse gas (GHG) emissions. This is a significant stance that will help make Brazil a

leading contributor to global sustainable development. However, this commitment will increase the regulatory pressure and exposure of companies to emerging risks, an intrinsic trend in the current linear 'take-make-dispose' economic model. Applying the circular economy (CE) principles can potentially generate significant benefits. Based on the assumption that businesses need additional capabilities to effectively tackle the challenges of reducing environmental footprint, the aim of this paper is to investigate the case of Brazil and address the questions as to what extent (i) can Enterprise Risk Management (ERM) provides more confidence for businesses to embrace the CE concept, and (ii) can an environmental-oriented supply chain collaboration platform be a risk reduction strategy to support CE approach. The methodology was based on literature review, survey responses from a number of large companies representing a third of the country's GDP and secondary data collected from the companies' reports. The paper discusses and identifies needs through expanding and linking ERM to business cases and initiatives towards implementing CE principles. It also provides insights into the perceptions of risks and opportunities confronting an organisation as a result of the beginning of transitioning to a CE framework.

Author: Munro, Scott

Faculty: FHMS

Title: The use and impact of 12-lead electrocardiograms in acute stroke patients: Findings from a systematic review.

Stroke is a leading cause of mortality and disability across the globe. Emergency Medical Services assess and transport a large number of these patients in the prehospital setting. Guidelines for UK ambulance services recommend recording a 12-lead electrocardiogram in the prehospital environment, providing this does not add to significant delay in transporting the patient to hospital, however this recommendation is not based on any evidence.

A systematic review was conducted to search and synthesise the literature surrounding the use of prehospital electrocardiograms in acute stroke patients, focusing on the prevalence of abnormalities and their association with prognosis and outcome.

Although the prevalence of ECG abnormalities appears common in hospitalised patients, their prognostic impact on mortality, disability and other adverse outcomes is conflicting amongst the literature.

There is a lack of research surrounding the use of prehospital ECG in acute stroke patients. Future studies should be based in the prehospital environment and should investigate whether undertaking an ECG in the prehospital setting affects clinical management decisions or has an association with mortality or morbidity.

Author: Osei, Michael

Faculty: FASS

Title: Against the odds: why do some young men resist joining gangs?

Recent years have witnessed growing concern in British society about the existence of youth gangs and the engagement of their members in violent crimes including gun and knife crimes. Key researchers in America have identified five main domains that increase the probability of a young person joining a gang. The five domains are: family, individual, education, peers and community. Their research found that young people who suffer

adverse experiences in one or more of these five domains were at greater risk of joining a gang. However, there are individuals who do not join gangs despite suffering adverse experiences in one or more of these domains but who are largely forgotten. The majority of gang studies continue to focus on why young people join gangs. By employing semi-structured interviews, this qualitative paper explores the mechanisms that have prevented some potential gang members (16 to 25 years youths) living in a socially deprived borough in London from gang membership. Potential health and social consequences of gang membership include school dropout, increased propensity for violence, teen parenthood, unstable employment and gang-related murders. The harmful effects of gang membership demonstrate the need for early intervention strategies that target vulnerable youths. Greater understanding of gang prevention can contribute to current efforts to steer young people away from gang membership.

Author: Pepper, Melissa

Faculty: FASS

Title: Doing More for Less in Changing Times: The Use of Volunteers in Policing

This study aims to understand the role of Police Support Volunteers (PSVs) and the officers who work with them in the Metropolitan Police Service (MPS). Utilising mixed methods including a survey of volunteers and interviews with volunteers, officers and stakeholders, the study explores both individual and organisational features, including the typology of volunteers and officers who work with them, the nature and extent to which volunteering impacts on the police service, and the factors that result in successful police volunteering programmes. Drawing on themes of police pluralisation, community engagement and responsabilisation, and set within the context of public sector austerity and the government's Big Society vision, the study aims to 'tell the story' of volunteers and their contribution to policing.

The research is in the early stages and, following on from a poster presented at last year's PGR conference, this oral presentation will outline headline findings from a survey of PSVs and qualitative interviews with key stakeholders with a focus on the roles that PSVs undertake and their experiences of co-ordination, management and integration within the MPS. By furthering understanding of volunteer-police relations and the context in which they operate, it is hoped that the research will inform the development of more effective and sustainable community based volunteering programmes in the police service, both in the UK and internationally.

Author: Reid, Daniel

Faculty: FEPS

Title: Flexible, Fibre Based Batteries and Capacitors - Imagine Being Able to Charge Your Phone from Your Jacket!

Tired of your phone dying before dinner? Fed up with your laptop running out during your essay? With modern electronics fulfilling an ever growing number of roles and tasks in our everyday lives, the job of powering these devices is becoming increasingly difficult. From simply providing enough power to enable your phone to last through the day, to enabling flexible and wearable electronics to come to market, the need for advanced energy storage systems is crucial.

Standard batteries currently used in mobile devices are bulky and rigid, making them difficult or impossible to incorporate into flexible and wearable electronic devices. Fibre based energy storage has the potential to allow energy to be stored in varied ways, opening up new and exciting avenues for device design. Mobile and wearable computing is set to be a massively expanding market in the coming decade, and many applications in this area will require and greatly benefit from flexible energy storage.

This project builds on research previously conducted at the University of Surrey. It focuses on the use of nanomaterials, such as graphene and carbon nanotubes, to improve and enhance the components of fibre batteries/capacitors. Various fibre production methods have been employed in this project, with a focus on wet-spinning. Materials produced are studied using a broad range of analysis techniques including scanning electron microscopy, spectroscopic analysis, and electrical/electrochemical testing.

Author: Rozas, David

Faculty: FASS

Title: Talk is silver, code is gold? Contribution beyond source code in Free/Libre Open Source Software communities

This study explored the notion of contribution activities in Free/Libre Open Source Software (FLOSS) communities. While contribution activities focussed on the collaborative creation of different types of digital commons (e.g. source code, documentation, etc.) have been widely explored, other types of contribution whose focus of action is directed towards the community have remained less visible. This research offers empirical evidence of the perception of "community-oriented" activities as contributions, its lack of visibility in the digital platforms of collaboration, and its relevance for the sustainability of the community. Additionally, the paper connects this issue to the larger literature on the commons, by drawing on the concept of affective labour. This research was carried out by exploring a "code-centric" FLOSS community (Drupal) as a case study, triangulating data from participant observation, documentary analysis and qualitative semi-structured interviews obtained following an ethnographic approach.

Author: Saunders, Elizabeth

Faculty: FHMS

Title: Metabolic analysis of solventogenic *Clostridium saccharoperbutylacetonicum* N1-4 (HMT)

The market for solvent production is predicted to reach \$43.4 billion by 2018 with n-butanol having over 20% market share value. Its main use is for the production of biofuel, butyl-acetate, butyl-acrylate, glycol-ethers and plasticisers.

This project focuses on the metabolic and physiologic characterisation of the acetone-butanol producing model strain N1-4. We will use a systems biology approach involving the construction of a genome scale metabolic model of the microorganism, which will be experimentally validated and informed, through the calculation of parameters associated to growth, maintenance, and solvent biosynthesis.

Chemostat cultures will be used to determine the effects of cell stress caused by acid production in solventogenic clostridia, on bacterial growth and energy metabolism. Organic acids are initial products formed during early stages of growth, while solvent

production is produced later on, possibly triggered by changes in pH..

Linking metabolic network analysis, genome analysis and metabolic and physiological observations will help to elucidate the metabolic limitations in solvent production and to design metabolic engineering strategies to overcome those limitations.

Author: Schlachter, Svenja

Faculty: FHMS

Title: Why stay “switched on” for work? Work-related technology use during non-work time and individual differences

Modern technologies (e.g. smartphones, tablets) enable employees to work virtually anywhere and anytime; an opportunity which is increasingly used creating an “always-on” culture. However, unwinding from work after hours is essential for employees’ well-being and effectiveness. Staying constantly “switched on” for work is thus assumed to have wide-ranging implications for the well-being of both employees and organisations. Ways to influence such technology use are hence of great interest to organisations.

This study examines individual differences regarding work-related technology use during non-work time exploring why some employees engage in such behaviour more than others. Understanding individual differences is essential to deepen our knowledge about the underlying mechanisms of such technology use as they can provide points of action for interventions.

An online survey design was used. Participants were asked to indicate how much they engage in technology use for work during non-work time, as well as to respond to various psychological scales regarding individual differences.

The conducted statistical analyses point to individual differences in work-life management as most influential when predicting work-related technology use during non-work time. The study’s findings emphasise the significance of individual differences, in particular regarding work-life management, when aiming to explain why some employees stay “switched on” for work outside of their work hours.

Author: Southgate, David

Faculty: FASS

Title: The value of national difference on perceptions of identity between Scottish and English citizens post-independence referendum

This research analyses the differences between English and Scottish citizens in the context of their national identity. It utilises a social identity theory based model to condition its enquiry and makes use of both qualitative interview and quantitative survey methodologies. The research design consists of a comparative analysis, looking at both countries in terms of national identity and comparing them so as to draw clear inferences from the mixed-methods data. A statistically significant sample of 2000 participants is used consisting of 1000 individuals in England and 1000 in Scotland with both samples being as representative of the populations and demographics of the respective countries as possible. The quantitative survey data will utilise zero to ten scales to rank a participants adherence to particular notions such as social justice and trust in the political system. This will be supplemented by qualitative data in the form of brief sections for the participants to explain a given ranking in the survey questions followed by semi-structured interviews with 20 participants from England and 20 from Scotland to discuss in-depth some of the

answers which are of particular interest. The immediate purpose of the research is to effect upcoming policy in relation to devolution and political alterations in both countries and to expand the already burgeoning field of identity in social science.

Author: Stant, Laurence

Faculty: FEPS

Title: Evaluating Measurement Uncertainty in Microwave and Terahertz Frequency Metrology

Measurements are ubiquitous in our daily lives. They allow properties of the real world to be sampled and used in models and tests whose outputs affect many aspects of the world - stock markets, manufacturing, and public safety, to name a few. However, when attempting to identify the true value of an observed quantity an amount of error is always present, so the uncertainty in the measured value should be evaluated and included with the result. Through a process known as calibration, major sources of systematic error (offsets not varying with time) in many classes of measurement can be significantly reduced and the quality of the measurement improved.

One class that benefits strongly from calibration concerns radio frequency (RF) electromagnetic wave measurements performed using vector network analysers (VNA), which can be used to characterize devices such as those found in mobile phones. After calibration some residual error will remain, and at RF and lower microwave frequencies this has been widely used to quantify the measurement uncertainty. At higher frequencies, including terahertz (1,000 GHz) frequencies, there is no current guidance for evaluating residual errors and so an investigation was performed to assess the applicability of the technique used at lower frequencies to these higher frequencies. This presentation highlights additional challenges faced with near-THz VNA measurements and the importance of uncertainty evaluation when processing measurement results.

Author: Starr, Kim

Faculty: FASS

Title: Thinking inside the Box: audio description for new audiences

Children with autism spectrum disorder (ASD) can find understanding social situations challenging, both in everyday life and when perceived through the medium of television. This is particularly the case where they are required to interpret emotions expressed by other people.

Audio description (AD) is a ‘voice-over’ service typically used to help blind and sight-impaired viewers access the visual content of multimedia texts. However, this study trials the use of audio description beyond the realms of physical impairment, assessing whether it can be adapted to provide emotion-cueing prompts for young audiences with ASD.

Accordingly, young ASD participants in a recent intervention pilot study were asked to view a series of video extracts, some of which included bespoke, emotion-based audio description. Whilst the purpose of the study was primarily to test methodology and instruments in advance of the main intervention study, early indications suggest that the inclusion of AD for these individuals may enhance their viewing experience in a number of key respects.

Whilst this study seeks to extend the use of AD in order to assist those with autism spectrum disorder, there is also potential to harness augmented reality technologies to

enhance the AD experience not only for ASD subjects, but also for those facing other cognitive challenges, such as Alzheimer's disease and post-traumatic stress disorder.

Author: Telfer, Kayleigh

Faculty: FASS

Title: **Transforming or Dismantling Probation? A period of organisational and professional change in the Probation Service**

In 2014, the coalition government introduced the largest, restructuring of probation services in England and Wales under its Transforming Rehabilitation Agenda. In order to introduce market principles of competition into the service, the public probation service was split into twenty-one privately owned Community Rehabilitation Companies (CRCs) and one, public sector National Probation Service (NPS). The splintering of the service earmarked the biggest upheaval of community offender management services in probation history and therefore triggered many organisational, occupational and personal changes.

Utilising a case study of one probation service during the key transitional phase, this paper presents some preliminary findings of qualitative interviews with probation officers, with a specific focus on how front line probation employees understand and negotiate identities during a period of great organisational upheaval. The paper identifies a number of key themes, centred around the experiences of officers from one area during the transition phase of the process. Themes discussed in the paper include separation and loss, status anxiety, coping and resistance.

Author: Toovey, Ben

Faculty: FHMS

Title: **Motor imagery shows enhanced priming effects compared to motor preparation: A cognitive hierarchy?**

Preparation (MP) and imagery (MI) can modulate subsequent movement. A congruent prime leads to faster response time to an imperative stimulus and fewer errors, while incongruent primes lead to the opposite. MI contains additional processes and simulated information over MP although this hasn't been assessed in the same study. The research question asks if MP or MI priming effects are equivalent and how it can be explained theoretically. In a single protocol, priming effects of MI and MP were compared to understand this relationship. In 4 behavioural experiments, priming tasks were used in a repeated measures design. In each task the 'prime' stimulus instructed participants to prepare or imagine (dependent on session) foot movements (left; right; both) that were congruent, incongruent or neutral with the informative 'imperative' stimulus (L or R movement). Similarly to MP, congruent MI resulted in better performance than neutral, while incongruent MI/MP performance was poorest. Interestingly the MI costs, benefits and congruency effects appeared stronger than MP. This congruency effect was stronger for short MI and presented in hand and foot responses and cannot be explained with cognitive load. We suggest unique contributions from MI specific processes towards priming upcoming action, and implicate a hierarchical organisation of MI and MP processes that may be explained using existing motor control concepts, and the internal model theories within the motor control context.

Author: Tutu, James

Faculty: FASS

Title: **Corporate Governance Reforms Post 2008 Financial Crisis: An Exercise in Futility**

The global financial crisis of 2008 is considered the most severe since the Great Depression of the 1930s. It exposed the inherent dangers of unregulated markets and highlighted the weaknesses in the edifice of the corporate governance system that has been constructed and determined by the shareholder primacy theory.

The underlying assumptions of this theory have led to the evolution of the current model which has dominated corporate governance thinking and practice for the past three decades. The crisis sparked an intensive debate regarding the causes and the possible reforms needed to correct the defective governance, regulatory and legal regime that characterised the pre-crisis corporate landscape. Consequently, the UK has been engaged in several corporate governance reforms to contain the crisis and possibly prevent future occurrence

The paper provides an overview of the causes of the crisis, examines the various reforms in the UK with emphasis on the Turner Review, Walker Review, the Banking Act 2009 and questions whether these initiatives constitute effective policy responses.

The paper argues that these reforms are at best ad-hoc and cosmetic which merely treat the symptoms but fail to address the problem of shareholder primacy. It seeks to recommend changes that will improve corporate governance through tighter regulation and a reconceptualisation of the shareholder primacy theory. This paper will be of use for researchers and policy makers.

Author: Ulaeto, Nsikak

Faculty: FEPS

Title: **Development of analytical and numerical assessment methods of structural robustness in reinforced concrete flat slab structures**

Progressive collapse of structures due to accidental actions has been of great interest in the civil engineering community over the last 50 years. This is due to disproportions in the consequences of damage relative to their triggering events. Several works have been carried out to assess structural robustness in various types of structures but very little research exists on flat slab structures. Numerical (computer finite element based) or analytical approaches capable of adequately assessing structural robustness in flat slab structures do not exist. Such approaches would need to adequately incorporate the influences of mechanisms which could develop during progressive collapse as well as their interactions. Possible mechanisms include flexural action, dynamic punching shear action amongst others, as well as the possible impact of falling components on lower lying ones. Neglecting one or more of these mechanisms would lead to unsafe or uneconomic provisions for robustness. Hence, this research aims at developing numerical and analytical approaches geared towards assessing structural robustness in flat slab systems with a view to improving the safety of structures incorporating them. Procedures adopted for the modelling of flexural and punching shear actions are here presented. Results obtained through analytical and numerical means were adequate when compared with themselves and with those obtained through the experimental tests available in literature.

Author: Watkinson, Shelley

Faculty: FEPS

Title: Towards a Quantitative Method for The Detection of Drugs of Abuse (DoA) and their Metabolites in Fingerprints using Liquid Chromatography-Mass Spectrometry

Conventional samples used for the detection of drugs of abuse (DoA), namely blood and urine, involve invasive sample collection protocols, privacy concerns, biohazard storage and the potential for falsification. Recently, the use of fingerprints as a collection medium for DoA testing has been investigated to combat these complications (1-4). Liquid chromatography-mass spectrometry (LC-MS) has been proposed as a method for the detection and quantification of DoA in fingerprint residues (1; 4). There is currently no validated method for the quantification of DoA in fingerprints, this is due to the perishable nature of fingerprint residue, the absence of fingerprint standards and the small sample volume, which complicates analysis. In this work, we have investigated the validity of a number of approaches to quantification of caffeine as a model drug in fingerprint residue using LC-MS including normalisation of the caffeine signal to endogenous compounds within a fingerprint and to the dry mass of a fingerprint. Quartz crystal microbalance and deposition methods have been assessed for the deposition of reproducible fingerprints. Improvements have been made by controlling the pressure of the depositions, using a washing procedure and waiting specific amounts of time before deposition.

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Author: Whitmore, Hannah

Faculty: FEPS

Title: Curing blindness using homoisoflavonoid natural products

There are four leading causes of blindness in the world. Of these, three have no cure. Two of these diseases are caused by retinopathy, a disease characterised by damage to the retina. Retinopathy can be caused by ocular involvement in an existing systemic disease like diabetes or as a disease in its own right such as age-related macular degeneration.

It is a disease in which blood vessels proliferate out of control, damaging the fragile membranes in the eye which eventually leads to blindness.

Plants have been used in traditional medicine to treat diseases for thousands of years in countries such as China. Investigations into the natural product chemistry of plants have yielded many compounds which are used as pharmaceutical drugs; some examples are Taxol, a compound from yew trees which is used to treat cancer and aspirin which is extracted from the bark of willow trees.

A homoisoflavonoid compound, cremastranone, extracted from an orchid used in traditional medicine has an anti-proliferative effect on blood vessels, suggesting it could be an effective treatment for blindness caused by retinopathy. Homoisoflavonoids are a type of compound commonly extracted from the Scilloideae sub-family within which the genus Rhodocodon, investigated in this work, falls. This genus contains many homoisoflavonoids and any novel homoisoflavonoids will be screened for their pharmacological properties, which have been shown to have anti-bacterial, anti-mutagenic and anti-inflammatory effects.

Author: Willson, Terry

Faculty: FEPS

Title: Reverse Electrodialysis – A salty solution to the global energy crisis?

It is well reported in media that global fossil fuel reserves are constantly decreasing and a common question posed is therefore a matter of 'when' reserves will be depleted as opposed to 'if'. A second major negative with regard to fossil fuels being the primary source of global energy is the negative effect that the burning of such fuels has on the planet, which is evident in factors including climate change and global warming.

Current water based energy technologies, such as tidal power, harness the kinetic energy of water and uses it to power machinery such as turbines to generate electricity. Reverse electrodialysis (RED) however works by producing an electrical current via the difference in chemical potential when solutions of different salt concentrations are mixed. The core components of a RED cell, and the largest factor affecting the performance and economic viability, are ion exchange membranes (IEM). Therefore the success of RED as a viable source of clean energy is dependent on the development and production of RED specific IEMs.

To date, this project has focused on the development of cost effective IEMs by radiation induced grafting polymerisation (RIG). The RIG technique has been used to chemically modify commercially available polymer films to produce various novel IEMs. The IEM properties are then determined experimentally and used in a mathematical model to estimate the gross power densities that can theoretically be obtained in a working RED cell.

Author: Wilson, Daniel

Faculty: FASS

Title: How can L2 pragmatic competence be comprehensively developed in the EFL classroom?

This paper seeks to address the neglect of pragmatics in TEFL (Teaching English as a Foreign Language) by investigating how a set of teaching methods can be practically incorporated in order to comprehensively develop second language (L2) pragmatic competence in the English as a Foreign Language (EFL) classroom. These methods have been developed by addressing the most salient issues regarding contemporary EFL course materials design and L2 pragmatic assessment methods. The primary novelty of this paper is to investigate how pragmatic assessments can be applied not only as a research tool (which has been their primary function until now), but also as an intrinsic component of the pragmatics teaching method.

Research will take place from February 2016 in Belgrade, Serbia, (30 teaching hours, over two months) with a sample of 30 advanced level Serbian EFL learners. The extent to which the devised method is successful will be determined by the qualitative analysis of data collected during pre- and post-instruction assessments and two sets of participant interviews.

By empirically demonstrating in this paper the methods by which L2 pragmatic competence can be comprehensively developed in the EFL classroom, the eventual aim is to contribute to the evolution of course materials design and teaching methods, and to deal with the current neglect of pragmatics in TEFL.

Author: Wilson, Louise

Faculty: FHMS

Title: Does Vitamin D Status Decrease More Rapidly, Following a Period of Supplementation, Depending on the Form of Vitamin D Given: D2 VS D3?

There is controversy in the scientific field as to whether the two forms of dietary vitamin D (vitamin D2 and vitamin D3) are equally effective in raising and maintaining vitamin D status (25OHD levels). Differences in the absorption, metabolism and degradation of the two forms have been proposed as the potential mechanisms for differences in their effectiveness. This study aimed to investigate whether the decline in 25OHD levels, following a 12-week supplementation trial (The D2-D3 Study), differed depending on whether vitamin D2 or D3 was given. A sub-set of 38 participants from the D2-D3 Study were invited to an additional visit, 4 weeks after supplementation ended. The study showed that in the 4 weeks post-supplementation, 25OHD levels significantly decreased in both the vitamin D2 (-15.4 ± 9.9 nmol/L, $P < 0.002$, $n = 14$) and D3 groups (-16.0 ± 10.9 nmol/L, $P < 0.001$, $n = 15$), and this total change did not differ between the two groups ($P = 1.00$). Interestingly, 4 weeks post-supplementation 25OHD levels only remained significantly higher than at baseline (prior to any vitamin D supplementation) in the D3 group (D2: 56.0 ± 21.5 vs 55.1 ± 21.3 nmol/L, $P = 1.00$; D3: 77.2 ± 20.4 vs 66.2 ± 22.2 nmol/L, $P < 0.008$). These results suggest that although the decline in 25OHD does not differ between those who have taken vitamin D2 and D3, vitamin D3 is more effective at maintaining 25OHD levels above baseline due to a greater increase in 25OHD during the supplementation period.

Author: Zhang, Shasha

Faculty: FASS

Title: Representing the "Real, New" China: Exploring Chinese Ideologies within China-Produced TV Documentaries and their Translations

Documentary is commonly perceived to be the authentic representation of the reality. However, the presumed objectivity is questioned and the discursive nature of documentary is emphasised (Nichols, 1991, 2010; Renov, 1993). The study of documentary therefore has the potential of unearthing the ideologies and identities within the product. Given that TV documentaries in China Central Television are state-run, its production on China can be seen as self-representations from which ideologies can be retrieved at different levels. Furthermore, audiovisual translation can be regarded as a representational practice (Pérez-González, 2014), the translation of the documentaries adds another layer of interpretation, as the translation is to be viewed by a global English-speaking audience.

This paper explores the dynamics of Chinese national identity and ideologies during the production and translation (dubbing) of China-produced documentaries. It adapts and adopts methods from multimodal discourse analysis (O'Halloran, 2004) and multimodal transcription (Thibault and Baldry, 2005) to analyse the English and Chinese version of documentary. This study will reveal ideologies in narrative translation, and in its interaction with cinematographic and music; it will give insights into China's ideology and national identity in global media; it will also contribute a methodology for further research on cultural representation and ideology identification in audiovisual translation.

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A World of Possibilities