



Breaking

DOCTORAL COLLEGE CONFERENCE 2018

New Ground

3 - 4 JULY 2018

AUSTIN PEARCE, UNIVERSITY OF SURREY

ABSTRACTS



AN EXTRAORDINARY EVENT
RIGHT ON YOUR DOORSTEP



**DOCTORAL
COLLEGE**

UNIVERSITY OF SURREY



DAY 1: PREMIUM PRESENTATIONS

UNDERSTANDING COMMUNITY CONNECTEDNESS AS A FORM OF RESILIENCE AGAINST MINORITY STRESS AND POOR MENTAL HEALTH IN THE AUTISTIC POPULATION

School of Psychology (FHMS)

Monique Botha

m.botha@surrey.ac.uk

Autistic individuals have a substantially higher rate of poor mental health compared to non-autistic individuals. The average age of mortality in the high-functioning autistic population is 20 years younger compared to the non-autistic population, with the primary cause of death being suicide. The minority stress model and social stigma may be key to understanding why. Previously we, (Botha & Frost, 2018), showed that minority stressors significantly predicted worse psychological, social and emotional well-being and higher psychological distress, beyond general life stress for autistic individuals. It was the first study, to our knowledge, that provided a theoretical base for understanding poor mental health in the autistic population. Following this, we are beginning to investigate whether connectedness to other autistic people exists, and further whether it may

be providing a form of resilience to the population. In a qualitative study, we used grounded theory methods to investigate community connectedness in the autistic population to create a theoretical framework of community. The findings show autistic individuals experience a vibrant community based around social, therapeutic, and political involvement. The benefits of connecting to other autistic individuals included the comfort of having similar others, a support system of those with similar experience providing advice and support, and for some, the first social friendship they had experienced in their life. Understanding the benefits of autistic community connectedness, we may be able to develop interventions that reduce the rate of poor mental health, and thus the risk of suicide, in the autistic population.



GROUND-BREAKING WOMEN: SUFFRAGETTE PRISON NARRATIVES

School of Literature and Languages (FASS)

Eleanor March

e.j.march@surrey.ac.uk

2018 marks the centenary of women's suffrage, when British women first won the right to vote. The campaign that precipitated this ground-breaking change saw one thousand suffragettes imprisoned. Several of these women wrote about their incarceration, creating valuable publicity for the suffrage movement, but also highlighting the need for prison reform. The prisoner is marginalised by society – a position similar to that of disenfranchised women. Suffragette prison narratives thus bear witness to the marginalising effects of prison, the subservient position of women, and the multiple marginalisations suffered by working-class, female prisoners. Prison writing has been likened to translation, as the prisoner-writer describes imprisonment to those outside prison, mediating between cultural contexts (Davies, 1990). This paper adopts from Translation Studies the concept of 'foreignisation',

a translation strategy that emphasises "the linguistic and cultural difference of the foreign text" (Venuti, 2010, pp.74-75). I argue that suffragette prison writers employ foreignisation to communicate the carceral experience, imbuing their writing with the otherness of prison. My paper examines foreignisation in suffragette writing, contrasting texts written by prominent suffragettes (Constance Lytton's 1914 memoir 'Prisons and Prisoners' and Sylvia Pankhurst's 1913 newspaper testimony), with prison diaries of lesser-known campaigners Alice Hawkins and Elsie Duval. I demonstrate how these writers sought to influence public opinion on prison reform, by bringing life "inside" to those outside the prison walls. My interdisciplinary approach thus offers fresh insights into the contribution made by these ground-breaking women, as we reflect on the events of 100 years ago.



DATA FUSION OF NEAR-CONTEMPORANEOUS SAR AND AIS DATASETS FROM NOVASAR-S

Department of Electrical and Electronic Engineering (FEPS)

Maximilian Rodger

m.rodger@surrey.ac.uk

In the field of Earth observation (EO), data fusion of satellite data is quickly gaining momentum; however, data fusion processing techniques are still far from being optimised. This is partly due to the intrinsic complexity and diversity of the different EO datasets and the temporal gap between corresponding acquisitions. This gap often invalidates the attempt of fusion for specific applications in which parameters to be monitored are highly sensitive to and fast variable with time. In some specific applications, such as those in maritime surveillance, and for specific datasets, such as the synthetic aperture radar (SAR) and automatic identification system (AIS) datasets from the first UK spaceborne SAR mission, NovaSAR-S, these problems are

mitigated. With both SAR and AIS payloads co-located on the NovaSAR-S platform, a near-contemporaneous acquisition of the two systems is possible. This innovative concept offers a near real-time maritime surveillance system, capable of providing a consolidated picture of human activities at sea, which is becoming increasingly important with the world's marine traffic quadrupling over the past two decades. A novel framework for the full exploitation of the payloads from NovaSAR-S is proposed, based on the high-level data fusion of SAR and AIS datasets. The general concept is presented and a case study with results will be presented at the time of the conference.



DAY 1: PRESENTATIONS

DIRECTED BY THE SETTING: A QUANTITATIVE STUDY INTO THE PERSON-ENVIRONMENT RELATIONSHIPS IN MUSIC PERFORMANCE

Department of Music and Media (FASS)

James Edward Armstrong & Chelsea Dainton

j.armstrong@surrey.ac.uk / c.m.dainton@surrey.ac.uk

During a musical performance, attributes of the surrounding environment have the potential to impact a musician's playing and experience while doing so. Beyond the effects of acoustics, how a musician interacts with the wider performance environment on a psychological and emotional level has received little attention in music and psychology research fields. As an extension of a PhD research project, an online questionnaire was circulated in order to gain quantitative insight into how musicians external to the main study engage a number of environmental qualities in the context of a musical performance. The questionnaire was targeted at guitarists and received 128 responses from musicians of all skill levels and from multiple musical disciplines, including: classical, pop/rock, folk, and jazz.

A vast majority of the respondents indicated conscious changes in their approach to a musical performance depending on the specific environment, and also reflected on previous performance experiences wherein the non-musical qualities of their surroundings were of significant influence. This paper presents the findings of a quantitative study into the person-environment relationship between a musician and their surroundings during past performance experiences, revealing substantial influence of behaviour-settings, socio-cultural significance, and personal meaning. The outcomes of this study indicate new areas for consideration within music performance studies research, encouraging interdisciplinary approaches and collaboration between fields.



SYSTEMATIC PRODUCTION OF GRAPHENE OXIDE AND ITS APPLICATION FOR DYE REMOVAL FROM A REAL TEXTILE WASTEWATER SAMPLE

Federal University of Pernambuco (Santander Universities Award)

Caroline Maria Bezerra de Araujo

caroline.maria@ufpe.br

The presence of dyes in water is a serious problem. Thus, various technologies have been studied for dye removal from wastewater, including physical, chemical, and biological treatments. Among these, adsorption is known as one of the easiest and most economic processes. A wide range of materials, such as active carbon and biosorbents are used for this application. Nanomaterials have also been studied for absorption of water pollutants. As an example, graphene and its derivatives have caught interests due to their outstanding properties, as these materials can reach theoretical surface areas over 2000 m²/g. It is the aim of this work to systematically produce different samples of Graphene Oxide (GO), to apply these in the adsorptive removal of dyes in real textile wastewater samples. GO samples

were produced using factorial design, applying several modifications to Hummers Method. For the adsorption study with Methylene Blue (MB), using the best samples produced, adsorption kinetics and equilibrium tests showed that the isotherm fitted well both Langmuir and Temkin models, and the adsorption kinetics fitted the pseudo-second order model. The experimental q_{max} value was higher than 500 mg/g and over 99% removal of MB (100 mg/L initial concentration) was reached in only 5 minutes experiment. In 1 hour test with a real wastewater sample, GO removed nearly 90% of turbidity and over 75% of colour from the real textile wastewater. All that indicates that GO might be an excellent alternative for dye removal in water, breaking new grounds to both environmental and novel materials areas.



DIETARY DETERMINANTS OF IODINE STATUS IN PREGNANT WOMEN FROM THREE EUROPEAN BIRTH COHORTS

School of Biosciences and Medicine (FHMS)

Mariana Dineva

m.dineva@surrey.ac.uk

Iodine is an integral component of thyroid hormones which are important for optimal fetal and early postnatal neurodevelopment. Maternal mild-to-moderate iodine deficiency during early pregnancy has been associated with suboptimal offspring cognitive outcomes. Iodine is supplied solely through the diet, thus determining the main food sources in pregnancy is essential so that information on achieving adequate iodine nutrition can be provided to pregnant women. Although good iodine food sources (e.g. milk, eggs, and fish) are well-known, the consumption patterns of these foods vary between and within populations, as does their iodine content. Consequently, some variation in the importance of different iodine food sources to population iodine status is expected across countries. This study aimed to determine the dietary influences on iodine status using data from three European birth cohorts from the

UK (ALSPAC), the Netherlands (Generation R), and Spain (INMA). Iodine status was assessed using a spot urine sample collected ≤ 18 gestational weeks. Dietary intake was estimated from a food frequency questionnaire (FFQ). Consumption of 'milk and dairy products' was the only food group significantly positively associated with iodine status in all cohorts. Country-specific dietary predictors were also identified (e.g., eggs, cereals and cereal products in the Netherlands, fish in Spain and the UK). These data clearly demonstrate the significant role of milk and dairy products as important dietary predictors of iodine status during pregnancy. However, country-specific food-group determinants were also important. Hence, future public-health interventions focusing on improving the dietary iodine intake of pregnant women need to be country-specific.



AUDITORY GAYDAR: DETECTING AND BEING DETECTED

School of Psychology (FHMS)

Fabio Fasoli

f.fasoli@surrey.ac.uk

Research on auditory gaydar has mostly focused on whether people are accurate in detecting sexual-orientation from vocal cues. Results have shown that auditory gaydar is very often inaccurate, but not random: listeners categorize speakers as gay- or straight-sounding, regardless of their actual sexual-orientation. My research aims to challenge literature on auditory gaydar. In particular, we moved from testing gaydar accuracy to examining beliefs and social costs of gaydar. We are interested in investigating a) whether voice is believed to be a stable cue of sexual-orientation or a cue that can be modulated across situations and social interactions, b) the experiences of gay men/lesbian women in being noticed as gay/lesbian because of their voices, and c) stereotyping and discrimination that may arise when a person sound stereotypically gay/

lesbian. We have investigated these questions by using a range of methodologies (e.g., self-reported questionnaire, categorization tasks, and experimental studies). Results suggest that individuals believe voice to be a sexual-orientation cue for male, but not to female speakers. This is in line with the fact that gay men, but not lesbian women, report experiences of being noticed as gay because of their voices. Finally, we found that a person who sound gay/lesbian is more likely to be stereotyped as gender-atypical (e.g., being masculine/feminine), and also more likely to be discriminated (e.g., in hiring process). Our research shows that modern forms of sexual prejudice may arise from subtle cues, like voice, forcing us to challenge the way we think and address issues of sexual-orientation discrimination.



GENDER STEREOTYPING REPRESENTED IN THE WORK OF THE COUNCIL OF EUROPE

Department of Politics (FASS)

Olga Frańczak

o.franczak@surrey.ac.uk

Gender stereotyping has been shaping people's reality for centuries. Many of these attitudes go unnoticed as they are deeply-rooted in societies. Therefore their harmful impact is overlooked. Elimination of wrongful gender stereotyping is named as one of three fundamental obligations necessary for achieving gender equality (CEDAW General Recommendation No. 25). Convention on the Elimination of All Forms of Discrimination against Women created by the UN in 1979 includes an explicit obligation of states parties to tackle gender stereotypes. However it took over 30 years for a similar provision to be included in the European context. The Istanbul Convention obliges states to eliminate wrongful gender stereotyping yet this topic did not spark a wider debate in contrast with CEDAW. The relationship between law and gender stereotyping is a new and very under-researched area. Moreover,

vast majority of scholarship on this topic comes from outside of Europe. The Istanbul Convention is yet to be deeply analysed in this context. This paper aims at addressing this gap and fits perfectly with the conference theme. The paper analyses the approach towards elimination of gender stereotypes included presented by the Council of Europe, including the documents introduced before the adoption of the Istanbul Convention. It uses the example of Poland to showcase the controversies regarding elimination of stereotypes during the ratification process. The paper also considers first reports drafted by GREVIO. Additionally, the study examines other tools used to tackle gender stereotyping, like the Gender Equality Strategy 2018-2023. The paper takes up interdisciplinary approach of law and politics.



ATTRIBUTE-BASED SIGNATURES IN VEHICULAR NETWORKS

Department of Computer Science (FEPS)

Daniel Gardham

d.gardham@surrey.ac.uk

“The automotive industry is currently developing smart vehicles to improve comfort, efficiency and safety for road users. Safety-critical applications in vehicular networks require authentication of users and messages, and existing approaches

typically utilise either enhanced digital signatures or certified pseudonyms to meet security and privacy requirements. However, such schemes suffer from limitations with regard to scalability and/or limited expressiveness of signing policies.



BELIEFS ABOUT ANTIBIOTIC USE IN UK LIVESTOCK: A COMPARISON OF VETERINARIANS AND FARMERS

School of Psychology (FHMS)

Sarah Golding

s.golding@surrey.ac.uk

Background: Antibiotic resistance (ABR) is driven partly by inappropriate use of antibiotics in human and veterinary medicine. Previous research has explored doctors' and patients' beliefs in relation to antibiotic use, but there is a paucity of research investigating this issue with veterinarians (vets) and farmers. Research Question: This study aimed to explore vets' and farmers' beliefs about antibiotic use in livestock, with consideration to similarities and differences between the professions. Methods: 13 farm vets and 12 farmers participated in semi-structured telephone interviews, which were audio-recorded and transcribed verbatim. UK-based participants were recruited using opportunistic and snowball sampling. Data were analysed qualitatively using thematic analysis. Results: Similarities. Animal-centred care was a key concern for vets and farmers, both in terms of everyday prescribing decisions, and potential

threats from ABR, such as treatment failure or restrictions on veterinary antibiotics. Despite this, ABR was not central to everyday decision-making for either profession. Differences: Vets experienced cognitive dissonance due to a gap between ideology and practice; vets' prescribing ideals are often knocked off-course by contextual factors. Farmers, however, seem not to experience this tension; they perceive less ambiguity in their antibiotic use than do vets. Vets expressed concerns about initiating antibiotic stewardship discussions, whereas farmers suggested they would welcome these discussions. Conclusions: This study offers new insights into similarities and differences perceived by vets and farmers in relation to the challenges of ABR and antibiotic stewardship. Understanding potential conflicts between vets' and farmers' beliefs can inform interventions aimed at promoting prudent veterinary antibiotic use.



THE BLUE GREEN PLAN AND ITS CONTRIBUTION TO THE CITY LANDSCAPE DESIGN

University of Brasília (Santander Universities Award)

Camila Gomes Sant'Amma

ppg-fau@unb.br

Green infrastructure (GI) has emerged as a way to put into practice the discourse of the sustainable city in its ecological dimension, which is also related to the vision of a resilient city. The proposal of greater visibility for the solutions applied to urban land planning has been made by means of a new Plan added to the existing ones, the GI Plan. These plans have been created and implemented at an international level, mainly in UK, but not in Brazil, which, on the other hand, already has several other plans with legal backing but involving some articulation difficulties for effective urban management. A number of questions arise: What is the scope of the Green Infrastructure Plan? How does it articulate with the traditional Urban Master Plans to generate the necessary answers to produce resilient, sustainable and ecological landscapes in the cities? And, in addition to the ecological promotion of green areas, what

is their contribution to the solution for the operational problems of infrastructure in cities, such as drainage, for example? The research starts with a literature review that examines the concept of green infrastructure, identifying its relations with the concepts of sustainability, resilience and ecology, as well as the strategies in different scales of planning and typology of interventions that characterize the concept. It pinpoints contributions toward the protection of urban ecosystem services, emphasizing the issue of drainage and the balance of the water cycle. The empirical study will focus on the application of plans for some cities in the international arena and the discussion of their contribution in the context of the legal framework of Brazilian urban management. These established correlations are intended to demonstrate the relevance of incorporating green infrastructure plans into Brazilian urban planning instruments.



DECISION MAKING IN EDUCATIONAL ASSESSMENT: HOW DO EXAMINERS MARK?

School of Psychology (FHMS)

Sarah Hack

s.hack@surrey.ac.uk

Research has identified that experienced markers use a range of cognitive marking strategies when deciding on the mark to award an examination response, including matching, scanning, evaluating and scrutinising. However, research to date has focused predominantly on GCSE marking and in subject areas where there is little scope for extended writing and so less is known regarding the cognitive marking strategies used for questions requiring extended written responses. This paper reports on research which begins to address this gap. Participants undertook a marking activity with 'think aloud', which was audio recorded. They marked four questions in order to examine the marking strategies used across a range of question types. They also completed an online questionnaire which further explored the marking

strategies the participants used. Thematic qualitative analysis led to the development of a model of marking with the cognitive marking strategy of evaluating at its core. Whilst the model supports the use of the strategies identified previously, it is clear that the evaluating strategy is of particular importance in the marking of extended written responses, with four distinct forms of evaluation identified. This paper discusses the model of marking developed and also considers how the model may change over the intensive marking period examiners have in which to complete their marking, and future studies designed to investigate this further. It is hoped that the findings of this and future research will be applied to the development and testing of an intervention to improve the speed and accuracy of examiners' judgements.



LIVING THE GOOD LIFE ON INSTAGRAM

Centre for Environment and Sustainability (FEPS)

Anastasia Loukianov

a.loukianov@surrey.ac.uk

The meaning of the Good Life has been the object of ongoing debate throughout much of humanity. In the West, taking its roots in Aristotle's and Plato's philosophies, it has developed through the years in the works of scholars from a variety of fields such as - but not limited to - sociology, psychology, anthropology, economics, and philosophy, business and marketing. While top down theories abound among academics, less attention has been paid to what living well means to lay people today and how these existing good life discourses resonate in their accounts. Yet these lay meanings are of tremendous significance for any scholar interested in the sustainability of lifestyles. This study makes use of Instagram - a highly popular social media platform - to shed light on the multimodal narratives of the

good life that are produced by ordinary users. It takes an interpretive semiotic approach and explores possible meanings of the good life as pictured in Instagram posts selected from a dataset collected in 2015 (Likes'R'Us dataset, created by scholars from the Pacific Northwest National Laboratory and the Pennsylvania State University). Through secondary analysis of this existing dataset, it makes two contributions to environmental research. First, it derives five narratives of the good life and suggests that these narratives are gendered and influenced by age group. Second, it highlights how the platform's interface and the social conventions that prevail on the platform push users to find value in everyday experiences, effectively creating an "Instagram carpe diem".



ALLUSION BY ANY TRANSLATOR, WOULD IT SOUND AS SWEET?: TRANSLATION OF ALLUSIONS IN THAILAND BETWEEN 1960 AND 2015

School of Literature and Languages (FASS)

Rangsima Ninrat

r.ninrat@surrey.ac.uk

“Among a variety of culture-specific items (CSIs), allusions pose particular challenges that translators cannot avoid. Messages conveyed by allusions are mostly implicit and require good knowledge about the source-language culture to be understood. However, does this knowledge change over time? The present

study aims to investigate the translation of allusions in English crime fiction translated into Thai between 1960 and 2015 concentrating on how different periods of time affect translators’ perception and understanding of allusions in source texts as well as on the strategies the translators employ to translate allusions.



THE GENDER DIMENSION OF THE EUROPEAN UNION FOREIGN AND SECURITY POLICY IN FRAGILE COUNTRIES

Department of Politics (FASS)

Graziella Piga

g.piga@surrey.ac.uk

While gender equality is portrayed as a core value of the European Union (EU) since its foundation (Hoskyns, 1996, MacRae, 2010), the fulfilment of the women, peace and security (WPS) agenda and its adoption in foreign and security policies are still insubstantial and subordinate to other priorities and existing gender orders. Given the limited evidence on the ways and extent to which gender has been mainstreamed in foreign policy (Guerrina and Wright, 2016), the purpose of this thesis is to examine if and how gender is discursively negotiated through key policies; how is adopted and promoted by the EU Institutions in relation to key stakeholders in fragile countries. My main research question is “Is the European Union integrating gender equality and the women, peace and security agenda in its work in fragile states?” To demonstrate the argument I use a combination of critical frame policy analysis, (Verloo, 2005) and qualitative research methods. I will collect evidence from

30 semi-structured elite interviews with policy makers in the field (Feb-May 2019), and use illustration of case studies to increase the validity of findings. The thesis engages with feminist institutionalism and feminist security studies to look at the role of actors and approaches used. The EU delay in embracing the WPS agenda reflects the limitations of both its approach to gender mainstreaming and its identity as a normative power (Guerrina and Wright, 2016). The dominance of male bodies reflects organisational bias in favour of traditional models and approaches to security and foreign policy (Kantola, 2010, Bretherton, 2011, Kronsell, 2015). Therefore, it is expected that although the EU gender myth is well grounded in legislative and policy documents (McRae, 2010) and improvements in the approach to gender mainstreaming are happening, the EU has not yet the capacity to overcome dominant narratives on security and foreign policy and thus have a transformative focus to gender.



SUPERCAPACITIVE ENERGY STORAGE FOR SMART TECHNOLOGY

Department of Electrical and Electronic Engineering (FEPS)

Ashveer Stott

a.stott@surrey.ac.uk

Energy storage will be more urgent in the future, as it plays a vital role in daily life due to our dependence on numerous portable electronic devices. Efficiently harvesting energy from renewable sources such as sunlight, wind and tide demands efficient and affordable energy storage technologies. Such as the supercapacitor, which provides high power and robust energy storage. Additionally, there are intensive efforts to develop powerful, miniature and flexible energy storage devices to progress the integration of wireless devices into our homes and clothes, and further develop electric vehicles. Supercapacitors, have received extensive attention due to their advantages over conventional energy storage devices, such as their high power capability

and cyclability. In recent years, supercapacitor research has benefited from the development of nanostructured materials and the innovation in device construction. The past two decades have seen significant progresses in both rechargeable battery and supercapacitor research, although each alone is still unsatisfactory compared to the cost and efficiency of fossil fuels. This situation has led to the development of hybrid devices that combines both the rechargeable battery and supercapacitor characteristics into one device. Termed “supercapattery” the behaviour of this device is similar to that of a supercapacitor with a greater energy capacity. This work will focus on such devices and how they may impact future energy demands.



CARBON NANOTUBE BASED MICROPROBE DESIGN FOR TESTING SMART MICROCHIPS

Department of Electrical and Electronic Engineering (FEPS)

Mehmet Tas

m.tas@surrey.ac.uk

Microchips are what make smart technology smart. They are in portable, powerful computers, in self-driving cars and smart TVs that can scan your face, to authenticate a purchase online via your TV-set, for example. These breakthroughs are all made possible by the remarkable improvements in the chip-making industry. Chipmakers have been living by the famous Moore's law, to double the number of devices on a chip every year, leading to shrinking the size of microchips whilst packing them with more processing power. Testing an individual chip, before it is packaged, is currently slow, costly and inefficient due to the small size of microchips. Therefore, companies prefer to test microchips after packaging which results in processing faulty chips before they are scrapped. Given that chip packaging has become 15-20% of the total cost of an \$80 billion industry, compared to 1% in the

1970s, testing before packaging with a new, fast and reliable technology is desired, to eliminate faulty chips before further costly processing. The exceptional mechanical and electronic properties of carbon nanotubes (CNTs), which are smaller than a DNA helix (one-billionth of a meter), make CNTs a promising candidate material for testing very small microchips in the future. Using a photo-thermal chemical vapor deposition (PTCVD) method pioneered at Surrey, we grow vertically-aligned and patterned CNT-forests based on a design architecture with a scalable approach which allows us to assemble thousands of CNT-microprobes in short manufacturing times. Fabricated CNT-microprobes are mechanically strong, electrically conductive and properties such as; stiffness, probe length are tunable via PTCVD growth to accompany various microchip-testing applications at micron scale.



DEVELOPING THEMATIC TOURISM ROUTES THROUGH TRANSNATIONAL COOPERATION: THE CASE OF IMT-GT LIVEABLE OLD TOWNS

Hong Kong Polytechnic University (Santander Universities Award)

Thanakarn Bella Vongvisitsin

bella.vongvisitsin@connect.polyu.hk

Since the world is becoming more borderless particularly in the tourism industry, developing cross-border thematic routes requires multi-stakeholder partnerships through transnational cooperation. The mission of tourism connectivity involves extensive dialogues amongst stakeholders, including public institutions, private organisations, civil society, academics, local community and international bodies. This study discusses the challenges of cross-border tourism development, including tourist dispersal from primary destinations to secondary sites, identification of shared values, and tourism infrastructure. Moreover, this study represents the voices of local stakeholders in transnational cooperative platform and contributes to better understanding of cross-border tourism development. Thematic routes, often referred as special-interest tourism, have been studied in various contexts. Nevertheless, research on transnational cooperation is limited. This study aims to identify factors influencing the

development of cross-border tourism routes. The thematic route is further examined in how it can be interpreted to serve the needs of multiple stakeholders. In-depth interviews, fieldwork participatory observation and historical archives review were analysed. The Indonesia-Malaysia-Thailand Growth Triangle (IMT-GT) Sub-regional Cooperation was used as the case by introducing the route of Liveable Old Towns as possible solution. This research adopted pragmatism and interpretivism as philosophical paradigms and qualitative action research as an approach by focusing on socio-historic context and reconciling interpretations of involved stakeholders. Findings revealed that spatial and temporal factors, en-route infrastructure, inventory of attractions, cooperative networks and marketing effort are major factors to achieve cross-border tourism. The theme was interpreted to include historical and cultural stories, such as the ancient trading, colonisation, Peranakan culture, and Sino-European architecture.



A TALE OF THREE COUNTRIES: CHANGING GENDER VALUES AND ELDERCARE RESPONSIBILITY IN ASIA

Shanghai Jiao Tong University (Santander Universities Award)

Zi Yan

sunnyswallow424@foxmail.com

Elder caregiving burden has become one of the social risks of contemporary East Asian societies, due to participation of women into the labor market, changing social values towards welfare provision and the demographic and social repercussion of an ageing population. Using individual-level data of the 2012 CGSS (China general social survey), 2012 JGSS (Japan general social survey) and 2012 KGSS (South Korean general social survey), this paper would like to highlight the existence of conflicting gender values and sheds light on how families think about care responsibility in a context of changing gender and family norms and of shifting elder care responsibility from the private to the public sphere in China, Japan and South Korean nowadays. Multinomial logit

analysis is conducted to investigate whether socio-demographic, economic and gender value variables affect people's attitude towards eldercare responsibility. Latent-class analysis is investigated to reveal distinguishable groups of people (Liberal, Moderate, Neo-traditional) in three countries and how they think about elder care in a context of conflicting social expectations that emerged as a result of uneven social change. Tentative estimation results indicate that, gender values plays significant role on adult children's attitudes towards eldercare responsibility, followed by level and change of income, age and education, effects of other factors being qualitatively in line with prior expectations.



DAY 1: PREMIUM POSTERS

BIODEGRADABLE POLYMERS FOR DRUG DELIVERY

Department of Chemistry (FEPS)

Nathaniel Bingham

nb00457@surrey.ac.uk

Biodegradable polymers have made their mark on modern medicine, seeing them used as surgical sutures, implants and as a method for drug delivery. Some of the benefits of these include the fact that they are naturally removed from the body after they have served their purpose and can provide selective or timed release of drugs. Polymer research is particularly interesting in the field of cancer treatment at the moment due to the fact that polymers can be tuned to selectively target cancer cells over healthy cells and accumulate in them. In this way chemotherapy drugs could be delivered only to the desired regions, limiting damage

to healthy cells and in turn taking away some of the negative side effects of chemotherapy. Our research looks into the degradation of biocompatible polymers and whether we can fine tune the speed at which they breakdown through the inclusion of either hydrophobic or hydrophilic groups. To do this we have synthesised several biodegradable monomer units that can be incorporated into polymers and we will be measuring the size of these polymers over time after being subjected to hydrolysis conditions. From this we would then be able to control how long a polymer stays inside the body depending on its desired application.



DEVELOPMENT AND CHARACTERISATION OF AN EX-VIVO MODEL OF PORCINE MYOCARDIUM FOR PRECLINICAL RESEARCH

School of Biosciences and Medicine (FHMS)

Robert David Johnson

r.d.johnson@surrey.ac.uk

Cardiac tissue slices are a promising experimental model for preclinical testing as they retain the structural and functional properties of the native heart, whilst allowing control over interventions and straightforward observations. Porcine hearts share anatomical, physiological and electrical characteristics with human hearts and are readily available from veterinary laboratories and abattoirs. Therefore, the aim of this study was to establish an ex-vivo model of porcine myocardium using organotypic slices from porcine hearts and assess their electrophysiological and calcium handling properties. Vibratome-cut myocardial slices (300-350 μm thick) were prepared from the sub-epicardial region of the left ventricle of porcine hearts. Slices were point-stimulated at cycle lengths (CL) ranging from 500 ms to 4000 ms, and analysed using a multi-electrode

array system to measure conduction velocity (CV) and field potential duration (FPD). Ca^{2+} transient duration at 50% recovery (CaTD_{50}) and 75% recovery (CaTD_{75}) was also assessed using Fluo-4 AM and optical mapping during field-stimulation at 500-4000 ms CL. CV was 46 ± 10 cm/s along muscle fibre orientation and 14 ± 1 cm/s perpendicular to fibre orientation, with an anisotropic ratio of 3:1 ($n=4$). Mean FPD was 316 ± 11 ms at 1000 ms CL ($n=5$). All slices displayed FPD, CaTD_{50} and CaTD_{75} prolongation at longer pacing cycle lengths ($n=4-5$), indicating both FPD and Ca^{2+} transient duration restitution. Our results show that porcine myocardial slices maintain the electrical and calcium cycling properties of the native myocardium, and therefore provide a novel ex-vivo multicellular preparation with potential applications in cardiac preclinical research.



THE WALKJOGSMILE FEEL-GOOD BEGINNER RUNNING PROGRAMME: A STUDY OF EXPERIENCES OF BEGINNER RUNNING PODCASTS FOR OPTIMISING A NEW RUN-WALKING INTERVENTION FOR INACTIVE PEOPLE

School of Psychology (FHMS)

Katy Kennedy

k.kennedy@surrey.ac.uk

Introduction: Beginner run-walk podcasts are a free, accessible way for people to start running, with public health potential to increase physical activity levels in inactive populations. For example, the popular NHS CouchTo5K (C25K) programme uses run/walk intervals to build running fitness towards 30 minutes' continuous running at nine weeks. The aim of this study was to optimise a new run-walk intervention (the WalkJogSmile programme) to help inactive people begin running. WalkJogSmile has a similar rationale to C25K, but includes innovative psychologically-based concepts to help people feel better during running, to improve short- and long-term adherence. Amongst other principles, WalkJogSmile uses short running intervals in early weeks, smoother increases in running duration than C25K, and a self-monitoring tool to help people monitor how they feel and adjust running accordingly. Method: This was a longitudinal online diary study, with

qualitative feedback structured around people's experiences of C25K or WalkJogSmile (both nine weeks, three weekly sessions), plus a quantitative enjoyment measure. Low-active participants (n=20) were emailed an online feedback questionnaire after each session. Results: Feedback on both podcasts was positive. Some improvements suggested for C25K were already included in WalkJogSmile podcasts, and participants gave further useful suggestions to improve WalkJogSmile. C25K participants reported extra walking breaks compared with WalkJogSmile participants, indicating that shorter running intervals and self-monitoring in early stages were more beginner-friendly. Conclusions: The WalkJogSmile programme was positively received, and participants gave useful feedback for optimising the programme. The next step is to examine long-term running success in a comparison with C25K.



ATTENUATING LIGHT AND THE CHOREOGRAPHIC

Guildford School of Acting (FASS)

Michelle Man

m.man@gsa.surrey.ac.uk

The artistic and affective relationship of light and the performing body has gained recent scholarly attention in the fields of scenography (Abufalia, Moran, Palmer) and digital technologies (Salter, Sutil). Similarly, significant critical analysis through both feminist (Albright) and Modernist lenses (Garelick) has been given to the revolutionary light dance performances of Loie Fuller (1862-1928). Distinctly, from the perspective of the choreographing dancer, 'Attenuating Light and the Choreographic' sits within my PhD practice research that explores the transformative encounters and perceptual disturbances that are available in the intensification and attenuation of lighting scapes. The conceptual developments grounding my work recognize that we live in a world of ever-increasing luminescence, argued by philosopher Paul Virilio as "an artificial condition of paradoxical wakefulness" (2009:51),

which alters the ways in which we think and respond to light. Within this context, my research suggests how choreographies created through sensitized approaches to lighting allow for a re-attunement of our relationship with light. Through generating experiences of dazzling and attenuation in dance performance, I offer a space where these nuances may be felt and critiqued. My research contributes to the current political debate that is witnessing an increased regulation on the use of Tungsten halogen lighting. Framed as an 'eco-political gesture', the imminent implementation of new legislation aimed specifically at theatre and performance environments is marking a critical moment in the history of theatre lighting. It is, therefore, with a sense of urgency that my research wishes to speak of the co-poiesis of lighting and the choreographic.



HOSPITAL SINK MICROBIOMES AND THEIR CONTRIBUTION TO THE SPREAD OF CARBAPENEMASE-PRODUCING MEMBERS OF THE ENTEROBACTERIACEAE

School of Biosciences and Medicine (FHMS)

Nadia Mohammed

nm00780@surrey.ac.uk

Transmission routes of antibiotic-resistant bacteria have been an area of focus in hospitals, following recent reports linking patient infections to organisms found in the hospital environment. In particular, handwashing sinks have been implicated in the transmission of carbapenemase-producing Enterobacteriaceae (CPE), a group of bacteria frequently associated with soft tissue, urinary tract and blood-borne infections. The aim of this study is to investigate the diversity and CPE status of microbial populations found in hospital sink drain traps (also known as P-traps), and in the discharge water released from them, in order to determine whether sinks promote the spread and transfer of resistance. To do this, a model sink system, fitted with P-traps obtained from a Manchester hospital, was used to replicate individual handwashing

facilities. In total, 8 P-traps were fitted of which 4 were obtained from drug treatment rooms and the remainder from sinks in 'domestic' areas including a kitchen, 2 public toilets and a day room. Using culture-based assays, five traps were positive for CPE and we collected at least 16 different CPE isolates for further analyses. CPE-positive P-traps more often came from rooms where drugs were handled than from the domestic areas. Based on our findings, P-traps represent a potential source of CPE and future studies are focussed on characterising what other organisms are present in the P-traps, and whether they can harbour and spread antibiotic resistance genes. These findings will contribute to our understanding of how best to minimise the risk posed by contaminated sinks.



PERSUASIVE ENVIRONMENTAL COMMUNICATIONS: A FIELD EXPERIMENT ON HOTEL GUEST'S VALUES, (IN)CONVENIENCE AND BEHAVIOUR

School of Hospitality and Tourism Management (FASS)

Pablo Pereira Doel

p.pereiradoel@surrey.ac.uk

The hedonic nature of tourism means that people demonstrate less of a pro-environmental behaviour (PEB) on holidays than at home. Tourism is a large and fast-growing sector, with 1,800 million of international tourist arrivals forecasted for 2030, a 46% and 167% increase compared to 2016 and 2000 respectively, with a contribution of 5% to global CO₂ emissions. Particularly, accommodation accounts for 21% of the CO₂ emissions from tourism and uses an average of 350 litres of water per guest/night. This research explores the use of persuasive messages to foster PEB among hotel guests to minimise their energy and water impacts, in particular the link between environmental values (i.e. biospheric, altruistic and hedonistic) and the (in)convenience of a specific PEB. Based on the community-based social marketing approach,

first, messages will be designed following the Elaboration Likelihood Model and pretested using biometric sensors (i.e. eye tracking, facial expression, galvanic skin response). After, messages will be tested in a field experiment in hotel rooms by using digital sensors (e.g. internet-of-things) to assess accurately and reliably guests' responses to the messages. Hotel rooms provide a similar contextual setting not available in home environments, where most PEB research has been done. Earlier PEB research in hotels rely on participants intentions, using self-report methods; or on human interventions to collect data. This research will break new grounds in understanding pro-environmental (tourism) behaviours and contribute to the largely unexplored field of how to better communicate sustainability with a consumer focus approach.



DEVELOPING A PEDAGOGIC MODEL TO IMPROVE THE STUDY SKILLS OF LEVEL 4 STUDENTS STUDYING IN POPULAR MUSIC IN HIGHER EDUCATION INSTITUTES

Department of Music and Media (FASS)

Sue Richardson

sr00888@surrey.ac.uk

My PhD research will develop an understanding of the particular problems performance students in Popular Music in Higher Education (PMHE) encounter with regard to studying. From this work I will devise a pedagogic model based on meta-cognitive learning as a tool kit for tutors to use, to offer a more focused and pertinent set of teaching and learning activities. The study of Popular Music in Higher Education has undergone many changes. Some institutes in the UK offer predominantly vocational degrees however still retain a significant element of academic content. It is my experience that many of the students enrolling on these courses have a low academic background and struggle to engage with certain modules of the course.

This leads to low study skills inside and outside the classroom, low attendance and an overall sense of low engagement. My initial pilot project (starting next month) will analyse student background (social, educational and musical) and explore their attitude towards study. It will also explore concerns and frustrations of academic staff. I will then evaluate pedagogic models that may be useful in answering the issues that arise. Finally I will develop my own model based on my research and test its effectiveness in the classroom. I am in the early stages of my research. My pilot project will be carried out in the summer term and I will present initial findings in July along with preliminary recommendations to develop the research to the next stage.



DAY 1: POSTERS

THE ROLE OF IN-FLIGHT MEAL ON SATISFACTION AND RE-BOOKING INTENTION: A STUDY OF ARABIAN GULF FULL SERVICE CARRIERS

School of Hospitality and Tourism Management (FASS)

Houda Al Balushi

h.albalushi@surrey.ac.uk

Food experience, being a unique touristic activity that can shape travelling, has not been given the sufficient attention in airline services' literature. Although, the basic concept of flight catering has not changed since its inception, consumers' expectations have changed. Despite the few studies that attempted to understand the role of meals in satisfaction and shaping passengers' experiences, even fewer considered the gap between in-flight meal satisfaction and re-booking intention. Therefore, this study aims to fill in this gap in Arabian Gulf- Full Service Carriers (AG-FSCs), being a context where very limited research exists. To achieve this aim, the questions to be answered are; what are the factors associated with in-flight meal satisfaction in long- haul business and economy class on-board AG-FSCs? what is the effect of in-flight meal satisfaction on the overall

satisfaction? is there a relationship between in-flight meals satisfaction and re-booking intention? To answer these questions, two phases took place; qualitative and quantitative. In the qualitative phase netnography and semi-structured interviews have been conducted. Data collected was analysed using content and thematic analyses and used to build the questionnaire items. Questionnaire data have been collected and to be analysed using Structural Equation Modelling. This research will contribute in developing a model of in-flight meal satisfaction through integrating existing models of airline service quality and food. It will utilise in netnography as a new method in airline service quality. Practically, the study will help decision makers to allocate the right resources to food on-board, hence promote airlines effectively.



EXPLORING THE DEVELOPMENT OF CUSTOMER LOYALTY IN THE HOTEL INDUSTRY: ANTECEDENTS AND CONSEQUENCES

School of Hospitality and Tourism Management (FASS)

Thaib Alharethi

t.alharethi@surrey.ac.uk

In fierce competitive markets, service industries have shifted toward paying better attention and emphasis than before to customer loyalty rather than concentrating on acquiring and attracting new customers (Shoemaker & Lewis, 1999). Loyalty can benefit the organisation in many ways, including creating improved profit by enhancing revenues and reducing the costs associated with acquiring and attracting customers and customer-price sensitivity (Reicheld and Sasser, 1990). Loyal customers will help promote your hotel. They will provide strong word-of-mouth recommendations, voluntary business referrals and references. Loyal customers increase sales by purchasing a variety of the hotel's products and by buying more (Bown & Chen, 2001). Loyal customers are considered to be great for hospitality firms since they are easier to serve than non-loyal customers, and they bring better profitability, referrals, continuous profit, and a willingness to accept price premiums and are considered to be a competitive advantage for the firm. Loyal customers decrease marketing and operational costs (Reichheld, 1996). The rationale of the research is as follows: first, the current understanding and practices from businesses in the hospitality and tourism industry towards customer loyalty as assumed in this research are under high pressure due to rapid market change and the variety of options and alternatives available. Also, this industry is heavily dependent on customer experiences that involve

several factors such as personal interactions, which make them tough to manage. In the hospitality industry it is important to carefully craft and shape the customer experience in order to create a loyal customer base that leads to a stable and prosperous business. As Hemmington (2007) stated, customers in the hospitality industry do not buy service supply, they purchase experiences; they do not buy service quality, they want memories. Customers need to be more engaged, involved, recognised and appreciated in this sector and businesses need to obtain the right culture, develop the right practices and implement best performance. Hospitality companies wanting to increase their market share and profitability must pay greater attention to their current customers and work towards retaining them (Tepeci, 1999). Correct business practices can boost customers' positive and favourable memories leading to a stronger level of loyalty. In the hospitality sector customer loyalty would be a more profitable approach because as a mature industry, the hospitality business must adapt market-share gains rather than market-growth gains (Jarvis and Mayo, 1986). This research will investigate the different perspectives of customer loyalty in the hotel industry and will highlight the essential factors associated with it. This research aims to create a more insightful conceptual framework that would help businesses to gain and retain life-time loyal customers.



LOW TEMPERATURE PEROVSKITE SOLAR CELLS

Department of Electrical and Electronic Engineering (FEPS)

Indrachapa Bandara R M

i.rajapakshe@surrey.ac.uk

Harvesting energy from the sun to produce electricity, with the use of the photovoltaic (PV) technologies offers an environmentally friendly, clean and renewable pathway of replacing the current scarce and costly energy sources such as fossil fuels. Today, solar cells (PV devices) can be fabricated from semiconductor “inks” that permit the production of low cost, light weight and flexible, large area solar panels. One such newly emerged set of semiconductor inks is “perovskites”. The efficiencies of these perovskite solar cells has shown a rapid increase from 3.8 - 22.1% in a matter of 8 years; a growth previously unseen in the PV sector. As a result, not only do these possess beneficial properties of a semiconductor ink based technology, these can strongly compete with the current commercial Silicon PV technology.

Furthermore, the easy tunability of its light absorbing properties also enables them to complement silicon solar cells while making it an attractive proposition for building integrated PVs. However, these perovskite solar cells require high temperature processing techniques which increases the cost of the fabrication process and prevents the production of flexible solar cells thereby restricting its commercial potential. Here, we report a new low temperature processing route for perovskite solar cells (temperature reduced from 450°C to 180°C) by engineering the solar cell structure while retaining the high efficiencies of >14%. The device architecture is further tuned to allow easy roll to roll printed manufacturing of flexible solar cells, while further lowering the processing temperature to 120 °C.



AN ONLINE STUDY INVESTIGATING THE ROLE OF EMOTIONAL PROCESSING SYMPTOM PERCEPTION IN SOMATISATION

School of Psychology (FHMS)

Laura Carter

l.s.carter@surrey.ac.uk

Somatic symptoms are highly prevalent and up to two thirds remain unexplained from a medical standpoint (Eliassen et al., 2016; Steinbrecher, Koerber, Frieser, & Hiller, 2011). Psychological factors can impact the experience of physical symptoms and in some instances, physical symptoms can be generated from psychological processes alone (Hudson, Ogden, & Whitley, 2015; Ogden & Zoukas, 2009). Emotional processing can also impact upon symptom perception, for example through somatisation, when emotional distress can manifest as physical symptoms (Lipowski, 1988; Spink, Jorgensen, & Cristiano, 2018). Alexithymia, an emotional processing style characterised by inability to recognise and describe emotions, has been implicated in somatisation (Lumley, Beyer, & Radcliffe, 2008). It has been suggested that impaired emotional processing may lead to the

confusion of physical and emotional internal signals (Brewer, Cook, & Bird, 2016). This in turn may lead to interpretation of ambiguous internal symptoms as indicative of illness (Van den Bergh, Witthöft, Petersen, & Brown, 2017). The current study uses an online questionnaire to explore this perspective, introducing a new novel measure of 'internal confusion' to identify how likely individuals are to perceive physical and emotional states as similar and how this is related to health status, in addition to other emotional processing and symptom perception styles. By identifying emotional processing styles that may contribute to medically unexplained symptoms, research can enhance understanding of an area that proves particularly challenging to both patients and healthcare professionals and in turn has potential to inform interventions in this area.



MICRO RNAS (MIRNAS) AND SIGNALLING PATHWAY RESPONSE TO REPETITIVE OCCLUSIVE STIMULUS (ROS) IN HEALTHY CONTROLS

School of Biosciences and Medicine (FHMS)

Ismita Chhetri

ismita.chhetri@surrey.ac.uk

Background: Physical inactivity cause significant loss of muscle mass & strength and increases risk of developing cardiovascular diseases & metabolic disorder. Repetitive occlusive stimulus (ROS) has been proposed as novel treatment to counteract the adverse effects of physical deconditioning such as muscle wasting (1)(2) and vascular dysfunction (3). ROS involves repeated inflation and deflation of a cuff positioned around upper arm/thigh to elicit brief bouts of limb ischemia. Exact mechanism underlying the therapeutics effect of ROS is unclear, however its remote effects suggest systemic circulatory factor is involved. MicroRNAs (miRNAs) could be a potential circulatory factors involved. miRNAs are small non-coding ribonucleic acids and regulate gene expression at the post transcriptional level (4). Aim: Assess if miRNAs are involved in the therapeutic effects

of ROS. Hypothesis: ROS induces differential miRNAs expression in local muscle tissue and in circulation resulting in protective systemic effects such as anti-inflammation. Methods: 8 healthy controls will be recruited and will receive both one ROS and SHAM session with in-between 'washout' period. Each session will include 4 cycles of 5 minutes inflation (to ~170 mmHg and 20 mmHg in ROS and SHAM respectively) and 5 minutes complete deflation. Blood and muscle biopsy will be collected before and 3 & 24 hour after ROS/SHAM to assess changes in miRNAs expression in local muscle tissue and plasma at the acute and prolonged protective phase of ROS. Inflammatory markers in circulatory peripheral mononuclear cells (PBMCs) will also be assessed. Project scope: This study can lead to ROS being widely used in rehabilitating, clinical and older population who face restricted mobility.



WHAT ABOUT COMMUNICATION?

School of Health Sciences (FHMS)

Karen Cook

k.l.cook@surrey.ac.uk

Globally mortality rates are falling and life expectancy is increasing, with an associated burden of disease and health related problems. Care provision for those with long term conditions (LTC) represents one of the greatest challenges facing Health Services, with expanding numbers exceeding current resources. Those with LTC are often viewed as passive care recipients even when there is recognition that supportive self-management is an effective means of enabling patients' greater control and health improvements. Effective communication could lead to better health outcomes by facilitating patient self-management. The challenge of equipping future nurses to support self-management is identified, requiring a communication focus to facilitate patient-centred support. There have been attempts to evaluate communication skills in

undergraduates. Data collection methods often use self-rated scales to measure communication skill or satisfaction with education with few using qualitative approaches. There is little evidence exploring experiences of students and teaching staff in the development of communication skills, through education and into clinical practice, with a paucity of evidence considering student experience of supporting those with LTC and in developing skills to facilitate patient self-management strategies. This project, using focus groups, aims to break new ground by developing a greater understanding of student and teaching staff experience of communication skill development and confidence in practice, in light of the need for undergraduate health science students, as the future healthcare workforce, to develop new skills to facilitate supportive self-management of those with LTC.



HOW DOES THE FORM OF FEEDBACK INFLUENCE THE WAY WE PROCESS THE MESSAGE? AN EEG STUDY

School of Psychology (FHMS)
Chelsea Dainton
c.m.dainton@surrey.ac.uk

Within education, both Evaluative Feedback (EF; how you have performed) and Directive Feedback (DF; how to improve in future) are used to promote learning. A recent study by Nash et al. (in press) has shown that DF, though more often requested by students, is often forgotten or misremembered in a recall task compared to EF. This study investigated whether differences in the ease of decoding (with EF being easier to decode) and utility (with DF providing more utility) of feedback could explain this paradox. Electroencephalogram (EEG) measures were utilised by the researchers to understand whether underlying brain processes can explain this difference in behaviour. The feedback related negativity (FRN) signal is an event related potential that is used to measure feedback processing. However, no study has

yet measured DF using these measures. Thus, the current study aimed to investigate whether DF produced an FRN signal similar to that of EF, and whether this component is sensitive to the ease of decoding or utility of feedback provided. Behavioural results highlighted confirmed the importance of both factors on performance. Feedback that was easy to decode and easy to utilise produced the highest accuracy and fastest reaction times, whilst the easy to decode but hard to utilise feedback produced the lowest accuracy and slowest reaction time. Within the EEG data a signal similar to the FRN was found in DF which exhibited sensitivity to ease of decoding and utility of feedback. Explanations for these findings and suggestions for future research are discussed.



ELECTRICITY GENERATING SMART GARMENTS

Department of Electrical and Electronic Engineering (FEPS)

Randunu Devage Ishara Gihan Dharmasena

rd00309@surrey.ac.uk

Recent advancements in electronics have resulted in devices that enhance the standard of living of the people around the world. One of the areas benefitting from these innovations is electronic textiles, which are widely used in healthcare, defence, communication, and domestic sectors. Powering electronic textiles is a major challenge due to their complexity, mobility, and the current global energy crisis. This calls for an innovative energy technology which produces renewable energy at a minimal maintenance. Humans produce abundant energy during routine body movements. Most of this energy is released to the environment, whereas if a fraction of the energy can be captured, it would be sufficient to power most of the personal electronic devices that we use today. This project introduces a technology

to convert the human body movements and the surrounding energy forms such as wind in to electricity, using minor modifications to existing garments. The basis of the technology is the static charging between different fibres and polymers. The conventional textile fabrics such as nylon, polyester, wool and cotton can be used to generate power using this novel technology. The fabric -based energy generators can produce electrical outputs of around 150 V, with a power output of 0.1 W. Therefore, this technology is a potential candidate to power electronic textiles as a renewable energy source, leading towards a maintenance free power supply ideal for Internet of things (IoT), where people and smart devices are connected aiming to improve their life standards.



HEALTH AND SOCIAL CARE PROFESSIONALS' EXPERIENCES OF CONNECTING WITH PARENTS AND CHILDREN DURING, AND FOLLOWING, PARENTAL DEATH: A QUALITATIVE REVIEW AND THEMATIC SYNTHESIS

School of Health Sciences (FHMS)

Penelope Franklin

p.franklin@surrey.ac.uk

Introduction Health and Social Care Professionals (HSCPs) experience difficulties when connecting with parents and dependent children during, and following, the death of a parent. To improve care, it is essential to understand the nature of these difficulties. **Aim** To analyse and synthesise qualitative studies exploring the experiences of HSCPs when connecting with parents and children; during, and following, the death of a parent. **Methods** A systematic search of Medline, CINAHL, SCOPUS, Embase, PsycINFO, Psycarticles, ProQuest, PROSPERO and Cochrane Database of Systematic Reviews was performed and reference lists and conference proceedings scrutinised. Included papers comprised HSCPs' verbatim reporting of their experiences. Three reviewers independently assessed the eligibility of studies for inclusion. Qualitative thematic synthesis was used to code verbatim reporting, translating codes into

descriptive themes and merging these into analytical themes. **Results** Seventeen out of 15671 articles met the inclusion criteria. Three analytical themes identified: [1] HSCPs' ability to connect with parents and with dependent children [2] HSCPs' personal emotions and professional behaviours and [3] improving connections with parents and children. **Discussion / conclusion** HSCPs desire to deliver high-quality care during, and following, the death of a parent. However, doing so requires them to connect emotionally. Without preparation for their supportive role, HSCPs often avoid connecting with parents and children about the impending death of a parent. **Practical or academic relevance*** There exists a need to develop an intervention to address the barriers to connecting identified in this review and to adequately prepare HSCPs for the emotional demands of their roles.



FOUR-WEEK MULTIMODAL PREHABILITATION BEFORE PANCREATIC RESECTION: AN INTERIM ANALYSIS

School of Biosciences and Medicine (FHMS)

Jason George

j.george@surrey.ac.uk

Introduction Pancreatic surgery is high risk with morbidity rates ranging between 30-60%. Insulin resistance and poor cardiopulmonary fitness are associated with postoperative complications. Supervised exercise programmes can improve cardiopulmonary fitness and insulin sensitivity. Nutritional supplements including fish oil and olive oil improve immune and cardiac function. This is an interim analysis of multimodal prehabilitation on insulin sensitivity and cardiopulmonary fitness in patients scheduled for pancreatic surgery. **Methodology** Participants listed for pancreatic resection underwent a baseline cardiopulmonary exercise test (CPET). Insulin sensitivity was measured using the hyperinsulinaemic-euglycaemic insulin clamp test. Patients were asked to consume liquid Ω -3 fatty acids (2g) and 30ml extra virgin olive oil daily for 4/52. Simultaneously, patients

attended ten supervised exercise sessions. Clamps and CPETs were repeated after four weeks. **Results** Nine patients completed the prehabilitation programme with no adverse events. Compliance with the exercise programme was 100%. Statistically significant improvements were observed in these parameters: o anaerobic threshold ($p = 0.02$) o peak VO_2 ($p = 0.03$) o peak power ($p = 0.01$) Interim analysis suggests the intervention has no effect on insulin sensitivity or body fat percentage. **Conclusions** Multimodal prehabilitation is safe and feasible in this cohort of patients. Adherence to the exercise programme was excellent. In this study, four weeks of prehabilitation was sufficient to improve cardiorespiratory fitness. Further work must be done in order to establish whether the benefits of extending this time-period outweigh the delay to surgery.



FEMINIST TRANSLATION STRATEGIES IN TRANSLATING CHINESE SCI-FI INTO ENGLISH: A CORPUS-BASED ANALYSIS OF THE AWARD-WINNING TRANSLATION THE THREE BODY PROBLEM

School of Literature and Languages (FASS)

Yi Gu

y.gu@surrey.ac.uk

The Three-Body Problem (Liu, 2008) has been a bestseller Chinese Sci-Fi novel for years. The book was translated into English by Ken Liu (2014) and won the prestigious 2015 science fiction and fantasy writing Hugo Award, making Liu the first Asian to win it. The story exposes the horrors of the Chinese Cultural Revolution in the 1960s, in an intriguing narrative for readers at home and abroad. However, western readers may not be aware that the original Chinese version of the book is rich in gender discrimination. Chinese scholars including Lang (2015) and Kang (2017) have applied feminist translation theories to their analyses before. However, these were based on isolated selected examples. This paper aims to obtain a more thorough picture of how translators cope with gender discrimination, by systematically investigating the phenomenon

in the English translation of Liu's entire novel of 400 pages. The source text and the translation were downloaded into digital files, automatically aligned at paragraph level using TMXMail and then manually post-edited. They were then compiled into a parallel corpus of 114,629 English words and 204,145 Chinese characters using Sketch Engine (Kilgariff et al, 2014). Gender-discrimination markers such as the overuse of "girl" to describe an adult woman were searched in the source text, and the alignment made it possible to identify the strategies adopted by the translator to mitigate gender discrimination. The results provide a framework for translators to address gender discrimination. The study also shows how corpus methods can be used to further research in feminism translation.



PREDIABETES, DIABETES AND DEPRESSION AS POTENTIAL RISK FACTORS FOR DEMENTIA

School of Psychology (FHMS)

Panagiota Kontari

p.kontari@surrey.ac.uk

Background: Previous research shows diabetes and depression are both independent and interacting risk factors for dementia. **Aim:** This study aimed to determine the longitudinal association of prediabetes, diabetes and/or depression with risk of dementia in older individuals. **Methods:** A total of 3,458 adults with no dementia aged ≥ 50 years from the English Longitudinal Study of Ageing were followed up for 10 years. Depression was assessed using short Center for Epidemiologic Studies-Depression with cut-off score of 4. Diabetes was identified with self-reported type 2 diabetes diagnosis or fasting plasma glucose (FPG) ≥ 7.0 mmol/L. Prediabetes was defined as having FPG level 5.6 - 6.9 mmol/L in diabetes-free individuals. Dementia incidence was determined with self-reported diagnosis or short-IQCODE score ≥ 3.5 . Results were analysed using Cox Proportional Hazards Regression Models

adjusted for sociodemographics, metabolic abnormalities and cardiovascular co-morbidity. **Results:** Unadjusted results showed participants with diabetes alone were almost 4 times (HR 3.84: 2.29-6.42) more at risk of developing dementia. Those with diabetes and depression were 6 times (HR 6.07: 2.18-16.84) more at risk of developing dementia. Participants with both prediabetes and depression had a 3.59 fold greater risk for dementia (HR 3.59: 1.12-11.53) compared to those with neither condition. After adjusting for all confounders, the group with prediabetes and depression remained a significant predictor of dementia (HR 3.41: 1.04-11.25). **Conclusions:** The co-morbidity of diabetes and depression is confirmed as a risk factor for dementia. Our work extends that by also suggesting that the co-morbidity of prediabetes with depression should be considered.



THE SOCIAL REPRESENTATIONS OF YOUNG PEOPLE IN GOIÂNIA WITH RESPECT TO HEGEMONIC MEDIA DISCOURSES

Federal University of Goiás (Santander Universities Award)

Gardene Leão

gardeneleao@gmail.com

The objective of this work is to investigate the social representations of young people in Goiânia with respect to hegemonic media discourses, involving the theme of crime and violence concerning young people themselves. We first sought to understand how young people are represented in the newspaper, *Daqui*, which is the paper with the largest circulation among the print media in Goiás. This was completed through a comparative study over 3 months of each of the years between 2010 and 2014. It can be seen that since 2010, *Daqui*, in its reporting, makes a strong connection between youth, poverty and danger. In 2014, this representation of young people was used to explain the increase in violence in Goiânia and Goiás as a consequence of the involvement of

young people in drug use and trafficking. After analyzing the news, and by using as a theoretical framework, the Theory of Social Representations, we tried to understand how young people from different social classes (high, medium and low), residents of Goiânia, receive, understand and live out their media representations concerning the theme of crime and violence among youth. It was confirmed that young people did not assimilate the media content without criticizing it. They could recognize that the newspaper, *Daqui*, is sensationalist, violent and prints superficial news which only serves to subjugate the capacity of interpretation among its readers. Despite experiencing violence in different ways, they were unanimous in stating that the media is not impartial or neutral in portraying their daily lives.



CORPORATE ENVIRONMENTAL ACCOUNTING FRAMEWORKS

Centre for Environment and Sustainability (FEPS)

Zheng Liang

z.liang@surrey.ac.uk

The concept of environmental accounting has been developed last century. It has been seen that a large number of literatures on environmental accounting area. However, the main issue of environment accounting in the past is the discussion largely focus on how to define environment accounting, the necessity of calculating environment cost etc. While in the past 10 to 20 years, the practice on corporate environment accounting become more active. Some of the recent corporate environmental accounting systems (profit and loss account from Pwc) are very comprehensive and involve all the necessary techniques including life cycle costing, input-output analysis etc. However, the problems raises is different frameworks tend to focus on a specific area and the quality of the

frameworks also varies. In addition, the question remains when it comes to implementation, a complex framework may not be the best option for many other companies such as small or medium companies. Thus, this research is aiming to review and assess the current environment accounting frameworks on corporate level. In order to do this, I will create a matrix and choose several existing frameworks to apply to different sectors to test the effectiveness of these frameworks and whether these frameworks are consistent. In each sector, we look at three different size of companies to gain a better understanding. Finally, I expect to develop or improve a new environment accounting framework based on the test.



ENGINEERING REFINERY RESIDUE-IN-WATER EMULSIONS FOR USE AS “PRE-ATOMISED” FUELS

Department of Chemistry (FEPS)

Daniel McDowall

dm00723@surrey.ac.uk

Refinery residues are crude oil components remaining after the fractional distillation process. These residues are complex and extremely viscous and have few uses and consequently little monetary value. However one company, Quadrise, is developing a novel application for them as an alternative fuel in large combustion engines. To transform the residues into a form that is suitable for use in boiler or engine applications, they are emulsified

into water, providing fluids with favourable flow characteristics and combustion properties. Quadrise has developed a unique residue emulsification process, although relatively little is known about the detailed science. As part of the fundamental understanding of these novel emulsions they have been characterised using rheological and colloidal techniques. Particularly, the effects of surfactants, polymers and salts have been investigated.



COORDINATION VARIABILITY IN MOVEMENTS OF THE DOMINANT AND NON-DOMINANT SIDES OF THE UPPER EXTREMITY IN PERFORMING ACTIVITIES OF DAILY LIVING (ADLS)

Department of Mechanical Engineering Sciences (FEPS)

Maryamolsadat Mirhadizadeh

m.mirhadizadeh@surrey.ac.uk

One of the major problems in analysing the movement of the upper extremity (UE) is the large movement variability between repetitions and different subjects. Studies in lower limb movement and sports biomechanics have shown that coordination variability (CV) is an important factor in achieving success in the execution of an action. Measures of coordination and CV have not been used in kinematic assessments of UE. A hierarchical approach based on measures of coordination, CV and 3D joint kinematics can potentially identify the presence of abnormal movement in the UE by assessing the movement strategy as a whole, thus overcoming limitations of current quantitative approaches. The aim of the study was to use CV to distinguish between dominant and non-dominant movements of the UE when performing ADLS, thus testing its ability

to differentiate between skilled and un-skilled movements. Ten participants with no history of UE problems performed five repetitions of five ADLS using their dominant and non-dominant sides. The participants then practised the movements using their non-dominant side and a second set of five trials was captured. Segmental coordinate frames and joint kinematics were then computed. The continuous relative phase (CRP) method assessed coordination in movements that were likely to be coupled in the shoulder, elbow and wrist joints. CV was able to distinguish between dominant and non-dominant movement patterns in the UE. This new technique differentiated between skilled and non-skilled movements, the technique likely to identify (subtle) differences that cannot be detected using more traditional techniques.



INVESTIGATING THE ASSOCIATION BETWEEN STRESS AND RESILIENCE IN THE WORKPLACE

School of Psychology (FHMS)

Lucie Ollis

l.b.ollis@surrey.ac.uk

Aim: To investigate whether resilience changes over time as a result of workplace stress.

Background: Resilience has been defined as a stable character trait characterised by positive adaptation despite significant threat, severe adversity or trauma (Cicchetti, 2010). However, there is not complete agreement within the literature. Recent research has suggested that instead of a static character trait, resilience should be considered an interactive process influenced by individual assets and the environment (Liebenberg et al., 2017). As a result, the relationship between workplace stress and resilience is of great interest. The aim of this research, is to examine in a longitudinal study, the co-variation of stress and resilience over time. Within an occupational setting, we will test whether resilience is a stable construct, independent to stress, or whether it develops

or decreases with stress exposure. Jackson et al. (2007) implied that if individuals were able to develop their personal resilience, they could reduce their vulnerability in stressful situations. **Method:** Participants will complete an online questionnaire including measures relating to stress, resilience, work-related rumination and job demands. Data will be collected at baseline (T1) and at three (T2) and six (T3) months. **Expected added value:** It is expected that the current research will broaden the knowledge of resilience in the field of psychology due to reported issues with the definition of the term. Furthermore, resilience is often investigated during periods of extreme stress such as natural disasters and terrorist attacks whereas this research focuses on stress individuals would encounter in everyday life.



THE OUTCOMES AND EXPERIENCES OF SOCIAL STIGMA IN TYPE 1 AND TYPE 2 DIABETES

School of Psychology (FHMS)

Laurence Reeve

l.m.reeve@surrey.ac.uk

Research background: Research has shown that type 1 and type 2 diabetes is associated with social stigma. This is significant as stigma deters people from accessing support and help, negatively impacting physical and mental health. However, there is very little research looking at the impact and experiences of stigma in type 1 and type 2 diabetes. There has also been no research exploring the impact that positive social experiences may have on stigma in diabetes. Research question: The aim of my research is to gain a greater insight into the role of stigma and positive and negative social experiences in people with diabetes. In particular it will investigate groups who are more or less likely to experience stigma and the outcomes it may lead to. Research Summary: The first part of my

research is to validate a diabetes stigma scale for use in the UK. This will be done with two studies, the first pre-testing the stigma questionnaire. Participants were interviewed regarding their thoughts and opinions on the clarity, relevancy, and comprehensiveness of the questionnaire. The next study is a quantitative study looking to validate the diabetes stigma scale and investigate potential groups who are more likely to experience social stigma and loneliness. Following this I am planning a qualitative study which will look at subjective positive and negative social experiences of people with diabetes. This is to determine common themes, who might be more or less likely to experience stigma and the outcomes it may have.



RELATIONSHIPS BETWEEN ADOLESCENTS' MOTIVATIONS TO CHANGE SMOKING BEHAVIOUR, ORAL HEALTH, RELIGIOSITY AND SENSE OF COHERENCE: A THEORY-BASED CROSS-SECTIONAL STUDY

Federal University of Goiás (Santander Universities Award)
Leonardo Rios

Adolescent smoking remains a worldwide problem. Even so, there is still little evidence on the factors associated with adolescents' motivations for smoking initiation and cessation. In this research, we aim to investigate if adolescents' motivation to change smoking behaviour is related to oral health, religiosity and sense of coherence. To do so, we'll perform a theory-based cross-sectional study in a population of adolescents aged 15 to 19 years from 14 campuses of a technical educational institution placed in 12 Brazilian Midwest cities. Estimated minimum sample size: 3600 participants. Three behaviour change theories were used to provide a theoretical basis for the research: PRIME Theory, COM-B System and Transtheoretical Model. By means of an extensive literature review, a self-explanatory questionnaire was prepared for the collection

of data. Such instrument underwent a stage of evaluation by external judges and was pre-tested in a preliminary sample of adolescents. Data collection is ongoing and will be concluded by June, 2018. Data analysis will involve descriptive, bivariate and multivariate statistics. The research is funded by a four Brazilian public institutions' program partnership and has been approved by a research ethics committee. We believe to be breaking new grounds in theory, practice and research since our study will raise original knowledge on relationships between important health and psychosocial factors and theoretical constructs, as well as supports for the improvement of public policies to promote adolescent health. The research will result in a doctoral thesis and the findings will be published in scientific journals and events.



QUANTIFICATION AND MITIGATION FOR AIR POLLUTION EXPOSURE TO IN-PRAM BABIES

Department of Civil and Environmental Engineering (FEPS)

Ashish Sharma

a.sharma@surrey.ac.uk

Research Background: Babies, usually referred to young children with age less than 1 year, are more susceptible to adverse impacts of a similar level of air pollution exposure compared with adults. The systematic assessment of their exposure is lacking. A multifaceted mitigation approach including soft (community empowering) and hard (technology driven) measures are needed to limit their exposure. Focusing on pollutants such as particulate matter (PM_{2.5}, PM₁₀), ultrafine particles (UFPs), black carbon (BC) and oxides of nitrogen (NO_x), the aim of this work is to critically assess the comparative exposure levels of in-pram babies and to develop a strategic exposure mitigation framework combining technology, public-policy and community engagement strategies. Research Question: What are the: (i) typical levels of pollution (PM_{2.5}, PM₁₀, UFPs, BC and NO_x) exposure to babies in diverse

urban microenvironments? (ii) physicochemical properties of exposed particles? (iii) effectiveness of passive control technology solutions (e.g., enhanced filtration across baby breathing zones, pram covers) for reducing excessive exposure? Research Summary: We systematically reviewed published studies and classified various pram types. Further, we assessed the flow features around the prams that affect the pollution dispersion and subsequent exposure. We then evaluated the physicochemical properties of particles inhaled by in-pram babies and active and passive exposure mitigation strategies, including a passive control at the receptor such as the enhanced filtration around the breathing zone or protection of prams via covers. Finally, we analysed the role of community engagement and public policy measures to complement technology-centric mitigation efforts.



UNDERSTANDING THE ROLE AND TRAINING NEEDS OF PRIMARY CARE NURSES REGARDING CANCER EARLY DIAGNOSIS: A SYSTEMATIC MIXED STUDIES REVIEW

School of Health Sciences (FHMS)

Hanna Skrobanski

h.skrobanski@surrey.ac.uk

Background: Primary care (PC) nurses have an important role in diagnosing cancer earlier (e.g. promoting symptom awareness and screening). Thus, an opportunity exists to improve education to optimise their role. However, no previous systematic review has collectively explored evidence on the role and training needs of PC nurses regarding cancer early diagnosis. Aim: To identify, appraise and synthesize empirical evidence on the role and training needs regarding cancer early diagnosis among PC nurses. Methods: Electronic databases (e.g. MEDLINE) were searched for English-language papers published from 1997 onwards. Any study reporting primary data on qualified nurses working within primary care in developed countries was included. Outcomes of interest included: knowledge of cancer, frequency of nurses having cancer diagnosis-related discussions with patients, factors perceived to influence the frequency

of discussions, and perceived training needs. Studies were critically appraised using the Mixed Methods Appraisal Tool (MMAT). Results: No study met more than two out of four MMAT criteria. The proportion of PC nurses' found to have knowledge of cancer, and discuss screening with patients, was found to vary across cancer types and countries examined. Factors perceived to influence the frequency of PC nurses' discussing cancer screening fell into the following themes: 'resources', 'emotion', 'knowledge', 'communication skills', 'beliefs about screening procedures', 'beliefs about patient reception', 'perceived consequences'. No studies were found to measure the frequency, and barriers, to which PC nurses promote symptom awareness. Conclusion: Further high quality research is needed to understand nursing professionals' role and training needs regarding promoting symptom awareness.



COMPUTATIONAL MODELLING OF NEXT-GENERATION PEROVSKITE SOLAR CELLS

Department of Electrical and Electronic Engineering (FEPS)

Cameron Underwood

c.c.underwood@surrey.ac.uk

The integration of technology into daily life drastically increases the global energy demand. This energy demand cannot be sustainably satisfied by fossil fuels so we must look for renewable sources of energy harvesting. Solar energy is a key component of renewable energy and research in this technology is vital to ensuring a sustainable future for humanity. Perovskite solar cells have made unprecedented advancements since their emergence in 2009, rapidly increasing in efficiency from 3.8% to over 20%, giving efficiencies comparable to widely used silicon solar cells at a fraction of the cost.

These solar cells can be solution processed in laboratories with relative ease; spurring this rapid increase in efficiency. Despite the rapid increase in Perovskite solar cell performance, there is a significant lack of theoretical understanding of these new materials. Density Functional Theory is an ab-initio (from first principles) computational method. This work focuses on the use of Density Functional Theory to analyse and understand electronic structure and material properties of Perovskite semiconductors in the bid to develop new materials for the fabrication of cheaper and more efficient solar cells.



IMPROVING THE ENFORCEMENT OF THE JUDGMENTS OF THE INTERNATIONAL COURT OF JUSTICE

School of Law (FASS)

Huiru Wang

huiru.wang@surrey.ac.uk

Enforcement of the judgments of the International Court of Justice (ICJ) has met serious challenges since its first judgment in 1946 yet it has always been regarded as a peripheral part of the justice system and largely neglected until the recent two decades. Though of a minority proportion, cases of defiance of or non-compliance with ICJ judgments threatened the credibility and integrity of the Court, and undermined the role and effectiveness of international dispute settlement through judicial means. This paper attempts to examine the existing coercive mechanisms states are entitled or obliged to invoke individually, bilaterally or multilaterally both in theory and in practice, based on which critically addresses the difficulties of transforming

ICJ judgments into reality through an empirical study of the specific cases of non-compliance or defiance. The aim of this paper is to provide explanations for the problems arising out of the post-adjudicative processes of ICJ judgments from legal, political and sociological perspectives and explore the feasible measures of improving the current situation drawing lessons from comparative studies of other international judicial systems. Researching on the enforcement of the ICJ judgments has theoretical value with regard to better understanding and interpreting the binding nature of international law, as well as practical value in terms of evaluating and developing the current international law enforcement mechanisms.



FAIRY TALE OF GODDESS: THE REPRESENTATION OF POSTMODERN FEMINISM IN THE NEW UNDERGROUND FEMALE FILMS OF CHINA

Shanghai Jiao Tong University (Santander Universities Award)

Zao Zao Zhang

Zhangzaozao@sjtu.edu.cn

My PhD topic is fairy tale of goddess: the metaphor of postmodern feminism in contemporary films. So this post will show one aspect of my research: the representation of postmodern feminism in new underground female films of China. In recently, Feminism theory is developing, the means for representation in text are updating, especially in the aspect of films. In my opinion, this year's Academy Award winner 'The Shape of the Water' is a typical feminism film. But this claim—particularly connect to the postmodern feminism—is difficult to obtain the identity of the public in the patriarchal ideology. Among the film genres, pioneer/underground films

tend to be the most closely integrated with theoretical development. So we take the one of new underground as research object, within psychoanalysis, semiotics theories to analyze how postmodern feminism is represented and reproduced in the text. Pioneer feminism films, in fact, are often judged by the public with value of patriarchy and lose their own ideological value. In order to comprehend such narratives, we need to use qualitative research to compare the difference between the representation of above and the misrepresentation they often encounter, to make sense of the reception and presence that feminism thought in daily context.



DAY 2: PRESENTATIONS

ACTORS AND DYNAMICS IN THE MIDDLE EAST REGIONAL CHANGING ORDER AFTER THE ARAB SPRING: THE IRANIAN CASE (2011-2016)

University Complutense of Madrid (Santander Universities Award)

Angela Andreatta

aandreat@ucm.es

According to realist theories and the elements of power suggested by Waltz, Iran has most of the features needed to be considered a regional power with international aspirations. In addition, Kaplan's analysis about the "Iranian pivot" is interesting to better understand the peculiarity of this power and its historical and geographical predisposition to become an hegemonic actor with global influence. This study will analyze actors and dynamics which have contributed to the Middle East regional changing order after the Arab revolts. For this purpose, the study of the Iranian revitalization on the international dimension and its consequences at regional level will be revisited. The main goal of this research is to determine the active key-role that Iran holds at international and regional levels.

In order to do that, the study of the Iranian case will be present considering the following three main stages: firstly, the Arab awakening outbreak in Syria (2011); secondly, the Iranian elections of Hassan Rohani (2013); and finally, the Vienna Nuclear Agreement in July 2015. The main research questions are the following: how is the Middle East order changing after the Arab Spring? Which are the regional and international consequences of Iranian revitalization? And lastly, Could Iran be considered as one of the most favoured actors from this regional transformation? The main objective is to determine which dynamics have contributed to reactive Iran at regional and international level and the effects of the Iranian revitalization in Middle East between 2011 and 2016.



DOES ONE SIZE FIT ALL? INVESTIGATING THE EFFECT OF PERSONALIZED HOTEL WEBSITES

Hong Kong Polytechnic University (Santander Universities Award)

Irene Cheng Chu Chan

irene.cc.chan@connect.polyu.hk

Websites are an important channel for hotels to communicate their brand images and service quality to customers before consumption. Thus, scholars and practitioners have devoted considerable effort in enhancing website design. Existing literature mainly focused on identifying the critical features of effective website design, and examining users' cognitive and behavioral responses to quality websites. Most, if not all, prior studies predominantly focused on the content and design aspects of websites, suggesting that consumers' assessment of a website is a linear, rational, and conscious process. In other words, a generic website that is "well-designed" should effectively persuade a universal group of customers. The present study challenges this one-size-fits-all website design paradigm by proposing that various elements of hotel websites should be personalized according

to the characteristics of different customer segments in order to leverage the potential of targeted marketing. This study examines the effect of personalized human images on hotel websites based on the sociological notion of homophily. The homophily theory suggests that individuals are more attracted to people that are similar to themselves. Building on a prior project on the effect of homophily in online review context (Chan, Lam, Chow, Fong, & Law, 2017), this study develops and tests a conceptual framework using experimental design to provide empirical evidence on the proposition that hotel websites should be personalized according to the demographic background of users. This study transcends the traditional conception of website design to a cutting-edge perspective, which offers practical suggestions to hospitality and tourism practitioners and website designers.



UNOFFICIAL SUBTITLING IN IRAN

School of Literature and Languages (FASS)

Jaleh Delfani

j.delfani@surrey.ac.uk

The preferred mode of audiovisual translation for the foreign language programmes on state television and cinemas in Iran is dubbing. The dubbing is done by professionals who are supervised by a formal institution i.e. The Ministry of Culture and Islamic Guidance. On the other hand, subtitling is mainly practiced illegally and covertly by non-professional or in other words 'unofficial' subtitlers. Some of these subtitlers are informally 'recognised' on the illegal subtitling scene and their products are the most popular among the target audience. Despite the fact that these subtitlers have not been trained as professional subtitlers, they have gained popularity among the target audience. In order to discover the reason of success and popularity of these subtitlers among Iranian audiences, as well as addressing this under-researched phenomenon in the Iranian context, the current

study aims at finding out the profiles of subtitlers that can be identified in this context. The genre under investigation is animation, as it has been attracting dual audiences of (young) adults/ children. In view of the fact that cultural elements have always been some of the most challenging aspects of translation, Pedersen's taxonomy of Extralinguistic Cultural References (ECRs) transfer strategies (2011) has been employed as a tool for analysing existing subtitles. The analysis is based on an adaptation of Pedersen's model. The study will compare three unofficial subtitled versions of five popular animations to find out the most frequently applied strategies by these three selected unofficial subtitlers. The comparison is made with regard to similarities and differences in terms of subtitlers' translation choices in translating the same identified ECR instances in the selected animated films.



INSTITUTION, ART AND VIOLENCE

University Complutense of Madrid (Santander Universities Award)

Adrià Harillo Pla

aharillo@ucm.es

From the field of Philosophy, and specifically from the Philosophy of art, the current context of constant changes is a magnificent environment to reflect on what determines what art is. Although some authors have already made this reflection, it is quite accepted that what decides what is art is the institution (the “Art world” or “Art worlds”). However, until now, many of the authors who have analyzed this topic have done so strictly from their field of competence and ignoring the advances in other academic disciplines. Probably, from my multidisciplinary education, from the commitment to science and as a consequence of living in a time of constant changes, my research is based on thinking about the institutional theory of art but articulating the

philosophy of art, the art market, the sociology of art and language, etc. What I would like to present is, therefore, the hypothesis in which I have been working all this time and whose partial results have been published in numerous academic journals and congresses: that art is art based on artistic institutions with exclusively commercial motivations; that art derives as an object of symbolic violence for social stratification. For this, the presentation would address issues such as the lack of definition of art, globalization, the role of the market, etc. with the commitment to make a solid presentation, falsifiable and committed to the work of all academics and scientists working in other fields but all with the same objective: the knowledge.



EXPLORING THE INTERFERON SYSTEM OF ASIAN ELEPHANTS (*ELEPHAS MAXIMUS*) FOR CONTROLLING ELEPHANT ENDOTHELIOTROPIC HERPESVIRUS INFECTIONS

School of Veterinary Science (FHMS)

Jon Haycock

j.haycock@surrey.ac.uk

Elephant endotheliotropic herpesvirus haemorrhagic disease (EEHV-HD) is the single most significant cause of death in juvenile captive Asian elephants (*Elephas maximus*) and also impacts upon wild populations. The peracute onset of clinical signs often results in death due to hypovolaemic shock within days and the apparent lack of efficacy for currently applied antiviral treatments and the inability to culture EEHVs in vitro have hindered clinicians and virologists in their search for efficient prophylactic and therapeutic approaches. Both the innate and adaptive immune responses play a critical role in controlling herpesvirus infections and the interferon (IFN) system is increasingly being investigated in humans as an alternative to conventional therapies for a wide variety of viral diseases. This project is the first to characterise the Asian

elephant innate immune system and tests the hypothesis that EEHV infections are mediated in part by the IFN system. Asian elephant IFN alpha, beta, omega and lambda genes have been sequenced to facilitate recombinant IFN protein expression. Their relative antiviral activities will be assessed using in vitro assays to identify candidates for potential clinical application. Enzyme-linked immunosorbent assays (ELISAs) will also utilise the recombinant proteins to investigate IFN dynamics in healthy and diseased elephants. Additionally, a panel of fifteen cell signalling molecules and IFN-stimulated genes (ISGs) have been identified and sequenced to develop quantitative polymerase chain reaction (qPCR) assays for gene expression analysis. Together, these tools will allow the IFN response to be quantified in a wide variety of in vitro and in vivo samples.



RESHAPING GUITAR SHEET MUSIC: CHALLENGING TWO CENTURIES OF TRADITION

Music and Media (FASS)

David Reginald Lawrence

d.r.lawrence@surrey.ac.uk

There is no editing practice in guitar sheet music that is regarded, conclusive or otherwise, as a means of meeting musician's potential needs to the greatest extent achievable. The purpose of an edition of a piece of music is to aid a musician in realising their aspirations with a work. By nature these aspirations are broad and pertain to a multitude of desires; producing an authentic performance, crafting a more expressive interpretation, developing a technique that is prominent in a piece, preparation for a music lesson, understanding more about a composer, or just simply satisfying a curiosity, to list but a few. The contents, therefore, required to facilitate progress from an edition of guitar music varies considerably amongst guitarists

and their different needs. This reality has led to the development of new approaches to editing but with limited success. This paper will identify the problems present in guitar sheet music by analysing and discussing multiple examples of guitar music that use different types of editing practices. These examples will be further expanded upon with practical demonstrations of guitar performance. This paper will then introduce a new notation system that succinctly deals with these issues with a novel but logical approach. Many students introduced to the guitar are deterred by the problems that arise from current editions. This paper will rectify this mentality by changing the way prospective students of the guitar study and interpret music.



SMART FLOORING FOR NEXT GENERATION INDOOR ENVIRONMENTS

Department of Electrical and Electronic Engineering (FEPS)

Andrea Marsella

a.marsella@surrey.ac.uk

The project breaks new ground literally, as its main aim is to redefine the way we've conceived the floor up to now. We interact with floors every second of our existence, but we don't get any data out of it. A sensing floor system consists of several sensors embedded in the flooring to detect the presence of people inside of a room. Applications include fall detection, gait analysis, health monitoring, security with main sites of installation being retirement houses and private buildings. We employed low cost materials like aluminium and commercial rigid plastic sheets, fully compatible with industrial roll to roll processing. We built a tile prototype (40cm x 40cm) by choosing appropriate electrode layout, materials as well as a high precision measurement kit. Therefore, we successfully detected a foot interacting with the sensor array

both in direct touch and medium range distance interaction scenarios. With these promising data, we are paving the way towards an easy to make, cheap, reliable architecture for cutting edge products in original sensing frontiers. The compatibility of the proposed architecture with standard and mature industrial processing techniques will further enhance the opportunities for incorporating this technology in commercial flooring products for the Internet of Things and augmented environments market in the medium term. Future steps will involve addressing issues coming along with the scale up of the system: both mechanical tests and assessment of electrical performance of different layouts will be under the spot to further enhance the properties of the aforementioned architecture.



AN OVERVIEW OF PHASE CHANGE MATERIALS IN CIVIL ENGINEERING

Department of Civil and Environmental Engineering (FEPS)

Isaac Olaniyi Olawoore

i.olawoore@surrey.ac.uk

Residential and commercial heating and cooling needs are increasing day by day as the world population rises. A significant part of the total energy consumption is used in heating and cooling. Heating and cooling demand is currently being taken care of worldwide by the use of conventional methods such as gas boilers and electrically powered air conditioning. An efficient and alternative source of energy for space heating and cooling is thermal energy by storing and utilising the variation in ambient temperature. Phase change materials (PCMs) have been recognized as a promising material to enhance the storage of thermal energy within a material medium. Recently, many research studies have been conducted by mixing organic, inorganic and eutectic PCMs with some civil engineering materials such as concrete, cement mortar, brick, glass and ceramic tiles. PCM incorporated

materials have been applied to various civil engineering building components e.g. slab, column, walls, ceiling, floor and windows to improve indoor thermal comfort, enhance thermal energy efficiency and sustainability. Recently PCM has been used for other civil engineering structures such as bridges, and pavement. The intent of the present work is to elucidate the distinct types of thermal energy storage PCMs, PCM selection criteria for civil engineering applications, advantages and limitations of PCMs, and an overview of usage and applications of PCMs for thermal energy storage in civil engineering as reported in the literature. Incorporation of PCM in civil engineering structural materials is a breaking new ground and promising way of regulating indoor temperature for the comfort of human being.



MOBILITY AND LIFESTYLE CONSTELLATIONS OF RETIRED THAI-AMERICANS

School of Hospitality and Tourism Management (FASS)

Tassya Putho

t.putho@surrey.ac.uk

The mass migration of Thais to the United States was at its peak in the 1970s with the relocation of new graduates seeking career development and a better life in the 'land of opportunity'. Almost 50 years later, many of these skilled migrants are transitioning into retirement after living and working in the United States for most of their lives. This transition signifies a pivotal point in the life course where important life decisions are made, including the decision to return or not return to the homeland, entangled within complex constellations of mobility and lifestyle choices in later life. Expanding from previous research on constellations of mobility (Cresswell, 2010), lifestyle mobilities (Cohen et al., 2015), and the ageing-migration nexus (Williams et al., 2000; King et al., 2017), this research aims to explore the varied mobility and lifestyle constellations

of retired Thai-Americans through capturing their motivations and everyday practices. Fifty-two in-depth semi-structured interviews were conducted in the United States and Thailand, revealing that the mobility and lifestyle constellations of all participants were highly motivated by family structures, relationships, and responsibilities. Many also pursued lifestyles that resonated with their physical, emotional, and spiritual wellbeing. This research breaks new ground by offering new insights on this culturally specific group of transnational retirees as well as presenting a comparative study on those with different mobility and lifestyle constellations. Ultimately, the study aspires to help policymakers in both home and host countries to cater to the needs of transnational retirees more effectively.



TUNABLE STIFFNESS ROBOTIC FOOT INSPIRED BY THE HUMAN FOOT

Shanghai Jiao Tong University - University of Michigan Joint Institute (Santander Universities Award)

Zeeshan Qaiser

zeeshan@sjtu.edu.cn

Traditional robots and structures are designed with nearly rigid members and actuators to have a stiff output for better control; however, this method of design typically produces systems which lack the finesse and sensitivity of natural systems with nimble control in both low force and high force applications. The human foot is capable of adapting to various diverse terrains, and this function is due, in part, to the foot's capacity of varying its stiffness in different anatomical regions. The purpose of this study is to develop an adaptable robotic foot by emulating the human foot's arch, horizontal tie (the plantar aponeurosis, midfoot ligaments, etc.), and its ability of varying its stiffness. The robotic foot is designed, analyzed, optimized and fabricated as a semi-circular arch with a horizontal tie consisting of a Tunable Stiffness Mechanism (TSM). The Tunable stiffness mechanism (TSM) in this manuscript is a unidirectional mechanism to provide an extension force output illustrated in Figure 2. The basic working principle of TSM is to vary the stiffness in

extension by varying the number of active coils. TSM is a combination of two helical springs; one spring with higher stiffness is used as an outer casing while inner (comparatively softer spring) is used to get a force output. Both springs (inner and outer) have the same pitch and different diameter and stiffness. The tunable feature is obtained by using an inner rotating piece which is characterized by a thread pitch to match the pitch of the both springs (inner and outer). Control on number of active coils is achieved by varying the rotation of this inner rigid rotating piece. In conclusion, a robotic foot was developed to adapt to various diverse terrains through varying stiffness and therefore potential energy stored at midstance; the potential energy is then available for an elastic rebound and propulsion in the terminal phase of gait. By implementing proper control algorithms, the proposed tunable stiffness robotic foot is capable of real-time adaptations to changing terrains, which may lead to the design and development of more adaptive industrial and bipedal walking robots.



SHAHRAZAD'S STORYTELLING AS POSTCOLONIAL FEMININE WRITING

School of Literature and Languages (FASS)

Mine Sevinc

m.sevinc@surrey.ac.uk

This paper aims to answer the question to what extent Shahrazad presents a liberating agent for postcolonial women's writing. Although Shahrazad used to be seen a victim to patriarchy, Shahrazad's voice can contrarily be regarded as liberating and a path to women's agency through storytelling. While this has already been suggested by Suzanne Gauch in *Liberating Shahrazad* (2007), my research aims to analyse Shahrazad's mode of storytelling as Postcolonial Feminine Writing. Postcolonial Feminine Writing is a concept that focuses on women's narrative voices engaging with feminine body and voice together bringing Frantz Fanon's postcolonial theory and Helene Cixous's feminine writing. Exploring these theories together, I define the feminine body as essential to women's liberation and agency and as the key link between Postcolonial Feminine

Writing and Shahrazad's storytelling. I explore the boundaries of Third World identities with regards to Postcolonial Feminine Writing to indicate that they are negotiable, fluid and intersectional. I explore power structures as negotiable, and thus liberating, although I acknowledge that intersectionality may consolidate power structures and reinforce the hierarchy of these structures. I explore how the hierarchies of different vectors of power function in Postcolonial Feminine Writing since it is also significant to recognise that social hierarchies could be imperative for the recognition/strengthening of women's liberation and agency. The novelty and contribution of my work is thus Postcolonial Feminine Writing which brings two distinct theories together and open a path to recognise French feminine writing theory within a postcolonial context.



THE ENVIRONMENTAL IMPACT OF EDIBLE INSECTS

Centre for Environment and Sustainability (FEPS)

James Suckling

j.suckling@surrey.ac.uk

The demand for meat in our diets is creating an unsustainable pressure upon the environment. The livestock sector is responsible for approximately 15% of all greenhouse gas emissions and uses 70% of all agricultural land. Additionally, the world's diet is changing to include more meat. With rising population, and the need to reduce our environmental footprint, meat consumption is increasingly unsustainable. Insects reared for food are seen as an environmentally friendly alternative to other animal proteins. Around 2 billion people worldwide eat insects; however, the practice is uncommon in Western cultures. It is in these cultures that eating insects may have potential to reduce the environmental impact of our diets by displacing meat. Crickets are one of the most popular insects for human

consumption. Previous studies have explored the environmental impact of rearing crickets in Thailand, but none to date within the EU. The most popular edible cricket species are from sub-tropical regions and are easy to raise in Thailand, with its warm climate. However, when reared in the UK, their breeding and rearing cages require constant heating to 30°C. This can represent a significant energy burden, especially in winter. The proposed talk explores the environmental impacts of rearing crickets within the UK and compares them to the impacts in Thailand. The goal is to understand whether it is more beneficial to rear insects in Thailand and import them into the UK, or to rear them in the UK and avoid the transport emissions. This understanding will help inform the development of the nascent UK insect rearing industry.



SOCIAL MEDIA IN TOURISM: CONSUMERS' TRUST INTENTION OF DESTINATION CHOICE

Shanghai Jiao Tong University (Santander Universities Award)

Mohammad Tipu Sultan

tipusultan_ctg@sjtu.edu.cn

The relationship between consumer trust and social media influence is not simple and straightforward. Consumer trust is essential to building up an effective connection between consumers and traders. This study analyzes consumers trust influence by information source for destination option. As the application of social media in tourism, content sharing is recognized one of the important information resources. In an attempt to gain new insights into the determinants of behavioral intention to the action of the decision, we propose a theoretical model that augments the Theory of Reasoned Action (TRA). Within this framework, we investigate the influence of social media information to decision making behavioral attitude. Structural questionnaire analysis was employed to verify the proposed research questions within a

sample of 204 (Two hundred and four) people who came in Shanghai as a tourist. Four research question was formatted for the study to define the significant relationship between consumers' attitude and search intention on social media, to find out the major factors of consumers' trust for destination choice, impact on consumer's trust intention by government promotion, source creating more trust on destination choice behavior have examined to identify the role of social media on tourism. Addressing the Conference theme: Breaking New Ground. Social media now part of our daily life. It has a significant influence on decision making. Social media creating new ground for new values and building a communicative bridge to our daily life. So, this topic is very much related to the Conference theme.



THE INTERRELATIONSHIP BETWEEN VITAMIN D, PHYSICAL PERFORMANCE AND INJURY INCIDENCE IN UK-DWELLING UNIVERSITY ATHLETES: DATA FROM THE D-BIICEP STUDY

School of Biosciences and Medicine (FHMS)

Saskia Wilson-Barnes

s.wilson-barnes@surrey.ac.uk

Vitamin D (vit-D) is a unique nutrient as its primary source is through subcutaneous sunlight exposure to ultra violet B (UVB) irradiation. This characteristic can be the cause of deficiencies in people that spend much time indoors or who live at higher latitudes. Athletes who are known to have higher nutritional demands due to training are a specific at-risk group as previous research suggests that vit-D deficiency can decrease performance. We therefore aimed to determine if there was a relationship between vit-D status and indices of performance. 58 university-level competitive athletes (21 female and 37 male) were recruited. Athletes were tested twice during the autumn and spring of 2015/16 to determine 25-hydroxy vitamin D (25(OH)D) concentration, muscle strength, aerobic capacity and injury incidence. Statistical analysis was performed

using paired and independent t-tests. 25(OH)D concentrations decreased significantly between autumn and spring; $54.1 \pm 22.7 \text{ nmol/L}$ vs. $31.5 \pm 16.4 \text{ nmol/L}$, respectively ($p < 0.001$). During spring 90% of our cohort were classed as insufficient ($< 50 \text{ nmol/L}$) and 44% as deficient ($< 25 \text{ nmol/L}$). We did not observe any seasonal changes in aerobic fitness ($p = 0.6$) and maximal voluntary contraction (MVC) of the knee ($p = 0.5$) and handgrip ($p = 0.8$) muscles. Ten athletes reported injuries although no differences were detected in vit-D status. These data suggest that university athletes are at significant risk of deficiency/insufficiency during the winter months (Oct-Mar) with almost half exhibiting a deficient vit-D status during spring. This is a cause for concern and warrants further research in the area of vit-D health in university athletes.



DAY 2: PREMIUM POSTERS

AIRFLOW IN THE LEEWARD REGION OF GEOMETRICALLY REALISTIC MODEL TALL BUILDINGS

Department of Mechanical Engineering Sciences (FEPS)

Lara Beaton

l.j.beaton@surrey.ac.uk

Air pollution is the number one environmental cause of death worldwide according to the World Health Organisation. Improving air quality will have the greatest impact in reducing these deaths as more than half the world's population currently live in cities. Air flow around tall buildings especially in the leeward region is still poorly understood. Previous studies have almost exclusively been based on using idealised (cuboid) tall building models amongst a regular or irregular array (Yoshie et al., 2007; Heist et al., 2009; Perry et al., 2016; Fuka et al., 2017; Aristodemou et al., 2018). The aim of this research will be an explorative investigation measuring air flow in the leeward region of geometrically realistic tall model buildings (1:200 scale) in the Enflo wind tunnel. The following

research questions will be explored; (a) How does the geometry of tall buildings influence the structure of its leeward region? (b) How do leeward regions of different geometry models compare to the cuboid model? (c) What is the potential impact for pollution dispersion of any differences in leeward region structure for geometrically complex tall building models? Initial results from the analysis of the wind tunnel data from airflow in the leeward region of a variety of model tall buildings will be presented, including the approach of using complex geometries rather than conventional idealised models. It is important to consider airflow at the architectural and planning stage of tall buildings to prevent human exposure to areas of poor air quality within the urban canopy.



THE EFFECT OF AN ELITE RUGBY UNION PREMIERSHIP MATCH ON IN VIVO IMMUNE RESPONSE

School of Biosciences and Medicine (FHMS)

Victoria Benford

v.benford@surrey.ac.uk

Background: The effect of steady state exercise on the immune system has been quantified through the use of an in vivo measure of T-cell mediated immunity (Diment et al., 2015; Harper Smith et al., 2011). However the immune response after a game of rugby involving prolonged intermittent high intensity exercise and collisions has not been investigated. Through use of experimental contact-hypersensitivity we will quantify the effect of a premiership rugby union (RU) match on elite players' immune system. We hypothesise that a match will significantly suppress athletes immune system, increasing their risk of contracting an upper respiratory tract infection. The aim of this investigation is to quantify the effect of a premiership match on an elite RU players' immune system. Methods: For inclusion, athletes must be part of the selected match

day 23. Twenty minutes after the final whistle a patch containing diphenylcyclopropanone (DPCP) will be attached to the lower back. Four weeks later the immune reactivity strength will be quantified by measuring the cutaneous responses to a low-dose challenge of DPCP on the upper arm. Dermal thickness and skin redness will be measured using skinfold callipers, an ultrasound and an erythema meter. Project Scope: This research will provide a deeper understanding of why rugby players suffer illnesses which prevent them from training and competing. A concurrent longitudinal study will allow us to determine contributing factors to players' suppressed immunity such as vitamin D status. Future research will assess the benefit of nutritional interventions to minimise immune system suppression.



SIROH (SIGHT RESTORATION VIA ORGANIC AND HYBRID THIN FILMS)

Department of Electrical and Electronic Engineering (FEPS)

Manuela Ciocca

mc01341@surrey.ac.uk

According to the World Health Organization actually over 300 million people are affected by visual diseases (40 million people are blind). Despite ongoing efforts, there are no visual prosthetic devices able to restore sight completely. Biomedical-electronic engineering can play a vital role especially for developing innovative prosthetics, in particular in restoring sight via Artificial vision. The most active research line in this field aim to identify treatments for Retinitis Pigmentosa (RP) and Age-Related Macular Degeneration (AMD), conditions involving degradation of retinal photoreceptors (eye's nervous cells). Moreover, recent strategies interfaced photoactive thin films with neurons. In particular organic polymer thin films have been used to elicit retinal activity in explanted degenerated animal retinas. Although these are fascinating scenarios, research in this

field has still many challenges to face. SIROH project aims to introduce a novel revolutionizing approach in the field of visual prostheses. A new bio-hybrid-photosensitive electronic device for retinal photostimulation and investigation is proposed and a first prototype was realized. It consists of a thin film of biocompatible semiconducting polymer interfaced with a retinal tissue and biological electrolyte in a two parallel transparent electrodes sandwiched layout. The device will evoke electrical photoresponses in retinal degenerated photoreceptors characterizing many visual illnesses. This cross-cutting research project brings together a multidisciplinary team from Engineering, Biomedicine and Neuroscience and it opens a gateway for a new era of electronic-biomedical science/engineering with the objective of tracing a new path for artificial vision.



AN IN-DEPTH EXPLORATORY STUDY OF VALUES IN ADULT NURSING STUDENTS, UPON EXPOSURE TO THE CLINICAL PRACTICE ENVIRONMENT

School of Health Sciences (FHMS)

Johanna Elise Groothuizen

j.groothuizen@surrey.ac.uk

Research background Values-based practice is crucial within healthcare. However, research shows that, upon exposure to clinical practice, values can 'erode' in medical students (Newton et al., 2008; Neumann et al., 2011). Maben et al. (2007) showed a similar process among graduate nurses. It is important to determine whether such a 'values erosion' occurs in Adult Nursing students as well, and, if so, how this takes place. Research question Do Adult Nursing students' values change upon exposure to the clinical practice environment, and, if so, how does this happen? Research summary Instrument development: A Situational Judgement Test (SJT) has been developed, based on literature research, and input from students/experts. Psychometric quality of this instrument is currently being assessed with a development sample of second year Adult

Nursing students. Main study: All Adult Nursing students of the September 2018 cohort will be asked to complete the SJT before and after gaining their first clinical practice experience. Value scores before and after will be compared (Paired t-test). A subsample of approximately 20 participants will be instructed to 'think aloud' while filling in the SJT, so that their associated thought processes can be analysed (Verbal Protocol Analysis). Thematic methods will be used to determine whether thought processes before and after exposure to clinical practice differ. Themes will provide input for the development of focus group questions, for further exploration. Implications: Findings will help identify educational needs regarding values, potentially 'breaking new ground' in terms of improving curricula that prepare students for providing values-based care.



CULTURAL IDENTITY OF CHINESE STUDENTS IN A TRANSNATIONAL UNIVERSITY IN CHINA

Department of Sociology (FASS)

Paola R. S. Eiras

p.eiras@surrey.ac.uk

Previous investigations on the complex processes of identity (re)construction in the transnational social field have shown to be increasingly relevant in a global context, characterised by increasing globalisation (Valentin, 2014). When compared to other countries, China has been actively participating in the process of transnational education (British Council, 2017). While aspiring to be a powerhouse in Higher Education provision, there seems to be a tension between such an interest in internationalising education and the Chinese cultural agenda. Thus, with a clear generational anxiety in relation to the possibility of losing “Chineseness” through a fast-paced process of gaining a position in the international educational space (Li et al., 2014), there is little qualitative research on the potential impact on individuals. Engaging with these discourses, this study explores how Chinese

students construct their cultural identities in a transnational university in China (XJTLU), and which elements and agents such as ethnicity, language, and the institution’s international staff can affect their perception of identity (and how). Informed by an analysis of 20 semi-structured interviews (including an arts-based activity) of Chinese students at XJTLU, this research explores Chinese students’ perceptions and learning experiences, with direct consequences to the quality of teaching by international institutions abroad. This study expects to inform relationships between local and international socialisation and specific local (cultural) needs/ issues for future teaching policies and practices. It also offers a unique look into Chinese students, based on their personal accounts in a very specific context, where intercultural interactions occur, and identities are (re)shaped.



HOW GIG ECONOMY IS INFLUENCING SOCIAL SUSTAINABILITY FOR RIDE-HAILING DRIVERS

Centre for Environment and Sustainability (FEPS)

Yi Zheng

yi.zheng@surrey.ac.uk

As one of the disruptive business model, on-demand ride service broke the silence in conventional transport industry. Famous examples for such service include Uber (U.S.) and Didi (China). Such vehicle sharing service through smartphone applications has enabled individuals to utilise their own cars and provide access to private vehicles for a wider population. To author's knowledge, academic research on ride-hailing have been limited in areas of sustainability. There is a question of how drivers are affected by the new business model in terms of their social well-being. This research can help to address such gap in current literatures and provide initial empirical insights into social dimension of sustainability from drivers working in Chinese urban ride-hailing industry. Interviews with ten ride hailing drivers from Beijing and

Guangzhou have been conducted in January 2018 as a part of my PhD research. Insights into their micro-entrepreneurship were revealed through semi-structured qualitative interviews that lasted from 40 mins to around an hour. The results from interviews have shown core issues surrounding the well-being of drivers. There is a major concern on the newly imposed regulation in the industry that stimulates inequality for non-local drivers in the chosen cities. Such inequality is the root cause for drivers' unhappiness. At the same time, drivers are also positively affected in terms of gaining access to employment and expanding their networks. The implication from evidence based on these two cities can help shape and adjust future urban transport policies in the country.



DAY 2: POSTERS

INSOMNIA IN THE BAEPENDI HEART STUDY COHORT

School of Biosciences and Medicine (FHMS)

Sabrina Ahmed

s.s.ahmed@surrey.ac.uk

Insomnia is a common health problem that has been defined by the Diagnostic and Statistical Manual of Mental Health Disorders (DSM) as an individual's subjective experience of having difficulty initiating and maintaining sleep, thereby contributing to behavioural, educational, work and other societal issues. Therefore, insomnia has significant socioeconomic costs and impact on lifetime morbidity. Despite this, it is often overlooked. It is prevalent in developed countries (sometimes termed digital, '24/7' societies) where sleep is threatened by technology and light pollution. This project aims to investigate insomnia in a developing country by studying the Baependi cohort in rural Brazil. Baependi is a small rural town in the Brazilian heartland, which has maintained a conservative lifestyle in spite of electrification. Previous research has reported that the average diurnal preference, sleep timing and circadian phase all occur earlier

compared to metropolitan areas. This project will investigate insomnia in the Baependi population by performing a descriptive analysis using data collected using the Brazilian Portuguese version of the Insomnia Severity Index (ISI). Taking advantage of the family-based structure of the Baependi cohort, heritability analysis will also be performed in this population. Finally, genome-wide array data from the Baependi project will be interrogated for associations with polymorphisms previously related with insomnia symptoms, and perform a genome-wide analysis for ISI score and other derived quantitative parameters of insomnia. By studying insomnia in this rural population and drawing comparisons with sleep in developed countries, in this research will address a relevant and growing problem worldwide, and its potentially significant involvement in public mental well-being and medical health.



DEVELOPING A MODEL OF CROWD MANAGEMENT BASED ON GROUP BEHAVIOUR THEORY: THE CASE OF THE HAJJ

School of Hospitality and Tourism Management (FASS)

Abdullah Alnabati

a.alnabati@surrey.ac.uk

There is little research related to crowd management during the event of Hajj, specifically. The majority of the previous research focuses on the issues of crowd management during larger scale events (Memish, 2010; Khan et al., 2010; Alzeer, 2009). These are some example of incidents at major sporting events: the first one is stadium tragedies at both Heysel and Mexico City, in 1985; Hillsborough, in 1989, is the second one. The significance of this study is that it would directly emphasise the personal experience of the visitors. Potential improvements will emerge that would thus increase capacity at the event as well as offering a more controlled movement of the crowd; thereby reducing the number of injuries and fatalities and improving visitor' comfort. This research will make significant

contributions to the literature by focusing on crowd management in religious events in general, and the Islamic religious setting in particular. The research is designed to analyse the concept of crowd management during the Hajj. The method used is mixed methods: a survey will be administered to visitors, and semi-structured interviews will be held with key stakeholders. The aim of this study is to develop a model of crowd management based on group behaviour theory and urban design principles to examine visitor management in pilgrim centres: The Hajj. The research will focus its investigation on how various religious sites have been managed and how the issue of overcrowding has been dealt with to ensure the safety and security of local residents and pilgrims.



METHYL DONOR SUPPLEMENTATION REVERSES EFFECTS OF A LOW PROTEIN DIET ON FATTY ACID METABOLISM IN MICE

School of Biosciences and Medicine (FHMS)

Isaac Ampong

i.ampong@surrey.ac.uk

An inverse association exists between plasma and liver concentration of odd chain fatty acid (OCFA) and the risk for Type 2 diabetes. A low protein diet also increases the risk of diabetes. Whether low protein diet affects OCFA metabolism is unknown. Here we have determined the effect of a low protein diet on circulating free fatty acid (FFA) concentration and hepatic fatty acid metabolic gene expression. Male C57BL/6 mice were fed either a normal (18% casein) protein diet (NPD), a (9% casein) low protein diet (LPD) or LPD supplemented with methyl donors MD-LPD) ad libitum for 7 weeks prior to culling. FFA were analysed by gas chromatography and transcript expression of liver metabolic genes were determined using real time PCR. A LPD for 7 weeks significantly reduced the proportion of plasma odd chain and even chain saturated fatty acids.

The percentage of total FFA of C15:0 (NPD 1.04 ± 0.23 ; LPD $0.35 \pm 0.09\%$ $p < 0.05$); C17:0 (NPD 13.14 ± 2.41 ; LPD $5.89 \pm 1.13\%$ $p < 0.05$); C10:0 (NPD 9.70 ± 1.36 ; LPD $3.28 \pm 0.65\%$ $p < 0.0001$); C14:0 (NPD 5.86 ± 0.56 ; LPD $2.89 \pm 0.54\%$ $p < 0.05$) were reduced compared to controls. However, the percentage of C18:2 (NPD 3.54 ± 0.59 ; LPD $17.94 \pm 5.09\%$ $p < 0.05$) was increased relative to the control. Interestingly, percentages of MD-LPD for C15:0, C17:0, C10:0, C14:0 were higher compared to LPD whilst this was a vice-versa for C18:2. The plasma fatty acid concentrations after MD-LPD were not significantly different from the NPD. FFA metabolism and transport genes (Fabp1, Fabp3, Fads2, Scd1) in the liver showed no significant difference between LPD and NPD. In conclusion, a 9% LPD decreases circulating C15:0 and C17:0 and this is reversed by methyl donor supplementation.



TUNING OF SPIN CROSSOVER $T_{1/2}$ IN 2,6-BIS(PYRAZOL-1-YL)PYRIDINE $Fe(II)$ COMPLEXES BY PERIPHERAL AMIDE-FUNCTIONALISATION

Department of Chemistry (FEPS)

Max Attwood

m.attwood@surrey.ac.uk

Amongst the various approaches to design new information storage media and sensors, spin crossover (SCO) technology is one of the most promising candidates for incorporation into conventional technology. Despite decades of research into the understanding and tuning of the critical transition temperature, it is still not possible to accurately predict the properties of compounds *de novo*. This is a broader issue linked to difficulty prognosticating crystal structure. Defined investigations into structure-function relationships would go some way to solve this problem. To this end, we have synthesised a set of novel ligands and their $Fe(II)$ complexes by peripheral amide functionalisation of the pyridine moieties in 2,6-bis(pyrazol-1-yl)pyridine (bpp). These complexes demonstrate abrupt and at times, stepped magnetic transitions with hysteresis and $T_{1/2}$ tuned between 181

and 350 K. We have been able to obtain the structures of several solvated and solvent-free structures, and thereby hypothesise with regards to the nature of the transitions and explain their SCO behaviour. We attribute the variation in SCO to crystallographic phase changes with modulation of hydrogen bonding which is known to stabilise the low spin state. In some examples, switching between spin states can be prohibited by kinetic stabilisation of trapped high spin state complexes, which show spectacular angular twisting via Jahn-Teller distortion. In addition to our work on monomeric complexes, we have extended our search for candidate materials towards coordination polymers which were subject to a recent review by our group. So far homo- and heterometallic coordination polymers incorporating 2,2':6',2''-terpyridine and bpp chelating moieties have been produced.



INVESTIGATION OF THE EFFECT OF ANTHROPOGENIC ORGANIC LIGANDS ON THE RETARDATION OF ANIONIC RADIONUCLIDES BY CEMENT PHASES

Department of Chemistry (FEPS)

Naomi Baker

n.e.baker@surrey.ac.uk

The UK's concept for radioactive Intermediate-Level (ILW) and Low-Level Waste (LLW) disposal is based in a multibarrier system in which the waste is immobilised with cement in steel containers and deposited within a geological disposal facility (GDF). After completion, the GDF would be backfilled with a specially formulated cementitious admixture, the NRVB (Nirex Reference Vault Backfill), which contributes to the physical containment of the waste and the chemical retardation of the radionuclides, by buffering the incoming groundwater to alkaline pH and providing a reactive surface for sorption and incorporation. The ILW/LLW contains significant amounts of anthropogenic organic ligands. These include degradation products of cellulose (CDP) and chelating agents used for decontamination: The concern is that their

presence will mobilise the radioactive elements under the conditions in the GDF. This project is focussed on the investigation of the effect of various anthropogenic ligands on the retention of anionic species (namely chloride, iodide and selenite) by cement. Two mechanisms have been proposed. The first involves competition between the organic ligands anions for the same sorption sites onto the cement. The second hypothesis is based on the complexation of calcium from the cement matrix by the organic ligands, which would lead to increasing negative charge on the cement surface and consequently reduction of anion retention by electrostatic effects. The current project aims to provide evidence to support either of the two mechanisms, adding to the post-closure performance assessment of the GDF.



POLYMORPHISM OF FURAN/PHENYLENE CO-OLIGOMERS IN CONSTRUCTING OF LIGHT-EMITTING SEMICONDUCTING MATERIALS

Novosibirsk State University (Santander Universities Award)

Alina Beloborodova

a.beloborodova@g.nsu.ru

Organic optoelectronics is a promising field for organic light-emitting devices (OLEDs) and organic field-effect transistors (OFET). Materials combining high photoluminescence quantum yields and efficient charge transport find their application in organic electronics. One of the promising compounds is furan-phenylene co-oligomer 1,4-bis(5-phenylfuran-2-yl)benzene (BPFB) and its derivatives. Optoelectronic properties strongly depend on crystal packing of material. Charge mobility depends on distance between neighbor centers of molecules; in turn inclination of latter leads to an increase of distance and a decrease of mobility. Efficient light outcoupling depends on inclination in the opposite way – inclination increases photoluminescence quantum yield. There are several ways to control crystal packing: variation of backbone length, backbone composition with

thiophen and furan, introduction of substituents, which allow tuning of intra- and intermolecular properties, changing of molecular orientation within the crystal. So, polymorphism is one of the design strategy for materials used in organic optoelectronics. In this article we used substituent effect and polymorphism for controlling of crystal packing. A new derivative of BPFB with terminal substituents has been synthesized and crystallized from solution and by physical vapor transport. Crystallization by different methods leads to appear of polymorphs with different crystal packing notably differing by tilt angle relative to basal crystal plane. The introduction of terminal substituents coupled with crystallization by different methods allows a fine tuning of crystal packing being a powerful approach for the morphology and optoelectronic properties control.



PLATINUM NANOSTRUCTURES WITH CONTROLLABLE PROPERTIES FOR SELECTIVE CATALYTIC APPLICATIONS

Department of Chemistry (FEPS)

Thomas Davies

t.davies@surrey.ac.uk

Platinum has tailorable properties and shows promise as a largescale catalyst in a variety of applications, such as in hydrogen powered cars. However, platinum is a very expensive and limited resource. It is therefore important to make the catalyst cheaper by increasing efficiency and minimising the quantity of material used. A catalyst increases the rate of a reaction without undergoing a permanent chemical change itself. Small crystals of platinum are good imitations of the catalyst's behaviour. Significant research has been completed on the interaction of small molecules with these platinum crystals. This gives important information on how platinum interacts with different types of molecules. The behaviour can be tested with an electrolytic

technique that applies voltage. The main issue with big platinum catalysts is that only the surface atoms can interact with reactants, leaving atoms in the centre unused and wasted. Catalysts made from platinum nanostructures are currently being explored. Nanostructures are atomic-level frameworks that are built on a surface. The nanostructures are much less dense than a piece of platinum, meaning substantially less resources are used to create them – making them cheaper. The platinum nanostructures increase the overall surface area of the catalyst, allowing more platinum atoms to interact with small molecules – increasing the efficiency of the catalyst. This is an exciting and novel approach to catalysis which could transform the technology of tomorrow.



SABOTAGING PEROXISOME ABUNDANCE: HOW FLAVIVIRUSES EVADE THE INNATE IMMUNE RESPONSE

Biochemical Sciences (FHMS)

Mafalda de Arrábida Farelo

m.farelo@surrey.ac.uk

Peroxisomes are ubiquitous organelles recently found to have a role in innate immunity. Upon infection, viral RNA induces the expression of interferons (IFNs) by utilizing mitochondrial antiviral signaling (MAVS) adapter proteins, which ultimately inhibits viral replication and assembly. Interestingly, MAVS are presented in both peroxisomes and mitochondria.

Peroxisomal MAVS induce rapid expression of type III IFNs, conferring short-term protection, while mitochondrial MAVS lead to type I IFN expression, with delayed kinetics stabilizing the anti-viral response. Being essential for early antiviral signalling, peroxisomes are targets for virus counter-measures. Capsid proteins of flaviviruses, such as Dengue virus (DENV) and West Nile virus (WNV), were shown to bind to PEX19, a chaperone-like protein essential for peroxisomal-membrane protein transport and biogenesis. Furthermore, WNV and DENV

infections lead to decreased peroxisomal abundance, and a reduced IFN expression. Our main objective is to reveal underlying molecular mechanisms by which capsid proteins sabotage PEX19 function, and subsequently the peroxisomal-dependent immune response. Besides DENV, we will study the capsid of Zika virus (ZIKV), a mosquito-borne virus closely related to DENV and WNV. Recently, ZIKV has been spreading, causing the biggest outbreak yet in 2016 in Brazil. Therefore, a better understanding of ZIKV host-pathogen interaction is urgently needed. Using co-immunoprecipitation assays, we confirmed the interaction between DENV capsid and PEX19. Moreover, we revealed for the first time that the ZIKV capsid protein also binds to PEX19. In the future, we aim to assess the effects of DENV and ZIKV capsid proteins on IFN expression and peroxisome abundance.



EFFECTS OF GENETIC VARIANTS ASSOCIATED WITH ONE-CARBON METABOLISM ON OVERALL RISK OF ISCHAEMIC STROKE AND ITS SUBTYPES USING GENOME-WIDE DATA

School of Biosciences and Medicine (FHMS)

Marie-Joe Dib

m.dib@surrey.ac.uk

Aberrant one-carbon metabolism (1-CM) affected by renal insufficiency, low plasma B-vitamin levels and by genetic variation in the genes involved in 1-CM has been previously associated with increased risk of ischaemic stroke. We tested the hypothesis that genetic variants affecting 1-CM are associated with increased risk of ischemic stroke (IS) and its subtypes, including large-vessel disease (LVD), small-vessel disease (SVD) and cardioembolic stroke (CE). Meta-data from the METASTROKE Consortium were used to test whether common genetic variants within 52 candidate genes important in 1-CM are associated with the risk of IS and its subtypes in 10,307 cases and 19,326 controls. We used SNP-based association analysis followed by gene-based associations with IS and its subtypes using VEGAS (Versatile Gene-based Association Study), and conducted in-silico expression analysis using GTEx

(Genotype-Tissue Expression) portal. Using SNP-based analysis, we identified associations of genetic variants at ATIC, MTRR, FOLR1/2/3 and TCN2 genes with overall IS. For LVD, we identified associations at 10 genes (ATIC, SLC19A3, MTRR, DMGDH/BHMT, MTHFD1L, GLDC, BAIAP3, SLC19A1, FTCD and TCN2); for SVD at 6 genes (MTHFR, GLDC, CELF1, FOLH1, MTHFS and DNMT1), and for CE at 6 genes (MAT2A, SLC19A3, MTRR, MAT2B, MTHFD1L and FTH1). Gene-based analysis confirmed the association of MTRR with overall IS, LVD and CE, the association of MTHFR with SVD, the association of MTHFD1L with CE, and identified associations between SLC19A2 with LVD and CE, MTHFD2 and DHFR/BHMT with LVD, CELF1 with SVD, and AHCYL1 with CE. Genes known to play important functions within 1-CM are associated with overall risk of IS and its subtypes.



UNDERSTANDING SUSTAINABLE PERFORMANCE OF CERTIFIED B CORPORATIONS IN THE US

Centre for Environment and Sustainability (FEPS)

Panagiota Agni Dikaïou

agni.dikaïou@surrey.ac.uk

Moving from shareholder value to stakeholder theory, firms have marked a shift in sustainable performance reporting since the 1990s in the Western corporate world. In line with this reporting evolution, Certified B Corporations (B Corps) have met rigorous standards of sustainable performance, receiving scores in dimensions such as Governance, Workers, Community and Environment. The purpose of this research project is to identify the nature of the relationships between dimensions of sustainable performance, such as those of employment conditions, social and environmental impacts as well as financial performance for different B Corps across sectors. Using a sample of B Corps across a wide range of industries, this paper attempts to investigate the complementarities and trade-offs between

dimensions of sustainable performance using a unique dataset of B Corp Impact Assessment scores, matched with financial performance data, for approximately 1000 US-based B Corps. In this exploratory sequential design of mixed methods, both quantitative and qualitative evidence is gathered in order to identify the relationships across dimensions, as well as the special features of the best performing B Corporations in relation to workers, social and environmental impacts as well as financial performance. Implications for the role of management, integrated reporting of key performance indicators and the role of government and institutional frameworks are provided in assisting the transition to a new form of business and a new way of measuring value creation.



VASCULAR MODULATION: TUMORS VERSUS TISSUES

School of Biosciences and Medicine (FHMS)

Adam Hargreaves

adam.hargreaves@surrey.ac.uk

Human and mouse-derived xenografts, transplanted into mice, are frequently utilised to study cancer biology, tumor behaviour and response to treatment. Preclinical studies employing these models often focus solely upon the intra-tumoral effects of a given treatment, without consideration of systemic toxicity or tumor-host interaction, nor whether this latter relationship could modulate the toxicologic response to therapy. In the field of anti-angiogenic medicine, questions remain regarding the role of tumor burden (and concomitant immune status) upon the release of pro-angiogenic mediators and how these might influence the well-documented peripheral toxicologic vascular response. There remains a knowledge gap around whether local and

systemic stimuli for the de novo formation of tumor-associated blood vessels can impact upon the vascular structure and function of peripheral tissues, notably within the endocrine system. In addition to providing valuable knowledge around the pathogenesis of cancer co-morbidity, an enhanced understanding of such processes could aid in the prediction of how a given anti-angiogenic-treated cancer patient may respond systemically to angiogenic inhibition. Here it is demonstrated that the transplantation and growth of a Calu-6 xenograft tumor can increase the resident vascular density within host endocrine tissues. Furthermore, this finding is associated with “resistance” to anti-angiogenic-induced peripheral endocrine vascular rarefaction (toxicity) and measurable functional impairment.



SEARCHING THE AFRICAN TROPICAL RAINFOREST FOR USEFUL COMPOUNDS: THE CHEMISTRY OF CONGOLESE CROTON MUBANGO (EUPHORBIACEAE) MULL. ARG.

Department of Chemistry (FEPS)

Mohammed Sani Isyaka

m.isyaka@surrey.ac.uk

Croton mubango Mull. Arg. is a tree belonging to the *Croton* genus of the Euphorbiaceae family. *C. mubango* grows up to 17 metres tall and occurs in the Central African Republic, Gabon, Republic of Congo and Angola. *Croton* species have produced two marketed drugs, plaunotol from *C. stellatopilosus*, used to treat ulcers, and a preparation known as Sangre De Grado (or Dragon's blood) from *C. lechleri* which is used in the treatment of inflammation and dysentery. The chemistry of *C. mubango* has not been reported before, however, the leaves of the plant are used to treat toothache, skin eruptions, gastritis, abdominal pain and dysentery in ethnomedicine. This research is part of the ongoing project at the University of Surrey on the Chemistry of African *Croton* species by the Mulholland group.

Eighteen diterpenoids, a sesquiterpenoid, two phytosterols, a derivative of ferulic acid and a phaeophytin have been isolated from the dichloromethane extract of the leaves of *C. mubango*. The structures of these compounds, which are shown below, were determined using nuclear magnetic resonance spectroscopy, mass spectrometry and infrared and circular dichroism spectroscopy. Ten previously unreported diterpenoids, eight belonging to the abietane class, 2-6 and 9-11, were obtained along with two pimaranes, 16 & 17, with the known compounds, 1, 7, 8, 12-15, 18 & 19, phaeophytin a, sitosterol and sitosterone. The new compounds will be submitted to the National Cancer Institute (USA) for anti-cancer screening and the Eli Lilly Open Innovation Drug Discovery Programme.



AVIAN PATHOGENIC AND CANINE, AND HUMAN UROPATHOGENIC ESCHERICHIA COLI: RESERVOIRS OF ANTIMICROBIAL RESISTANCE

School of Veterinary Science (FHMS)

Sarah Johns

s.johns@surrey.ac.uk

Authors: Johns S, Betts J, Newell DG, van Vliet AHM, La Ragione RM Background: Antibiotic resistance is a growing veterinary and public health issue. The emergence of increasing multidrug-resistance in extra-intestinal *Escherichia coli* (ExPEC) strains is of concern. Community-acquired uropathogenic *Escherichia coli* (UPEC) are a significant cause of human mortality and morbidity, with 4,832 deaths recorded in England and Wales in 2012. Similarly, avian pathogenic *Escherichia coli* (APEC) can cause a high mortality in poultry, estimated in Europe at 5-10% in 2015, resulting in great economic loss. Methods: The antimicrobial resistance (AMR) profiles of 52 APEC strains and 98 human and 133 canine UPEC strains was determined using disc diffusion assays. The assays were performed with 19 different antibiotics commonly used to treat Gram-negative bacterial infections in both human

and veterinary medicine. Broth microdilution assays were also performed on all strains to determine the minimum inhibitory concentration (MIC) for colistin. Furthermore, A multiplex PCR assay was performed to determine the strains phylogroup distribution. Results/Discussion: Of the 283 strains tested, 154 were resistant to ampicillin. (100% of the APEC strains showed resistance). The only antibiotic where resistance or partial susceptibility was not observed was Nitrofurantoin. The strains in this study were mainly phylogroup B2 (82%). However, there was a greater variation in phylogroups in the human strains than the poultry or canine strains. Conclusion: The results indicate the presence of a potential reservoir of AMR in ExPEC strains isolated from poultry and canines. The relationship of such strains to human UPEC infections is currently under investigation.



THE IMPACT OF SPATIAL CLUSTERING ON THE LABOUR PRODUCTIVITY OF HOTELS IN THE UK

School of Hospitality and Tourism Management (FASS)

Yoo Ri Kim

yoo.kim@surrey.ac.uk

In the UK, the persistence of the labour productivity gap between the tourism and hospitality (T&H) and other industries became a huge concern post-2008 with the non-recovery of productivity levels. Recent debates about migration and labour market consequences of Brexit have heightened such concerns due to the reliance on migrant labour and high turnover rates. The labour productivity gap has been acknowledged by the T&H industry, but traditional approaches to recruitment and training are insufficient. The productivity problem has both internal and external dimensions, and there has been relatively less focus on the external, especially on the role of spatial clustering of firms in productivity, which this research will investigate. The implications of spatial clustering are especially important in the context of the

T&H industry due to its inter-sectoral nature, where different firms and sectors collaborate and compete together, as typified in tourist destinations where the clustering of hotels, restaurants and bars, tourist attractions, etc. is apparent. This generates externalities, in the form of agglomeration economies, within clusters that can influence labour productivity, but their nature and extent are largely assumed, and the actual effects are uncertain. The relationship between spatial clustering and labour productivity is theoretically well-established, but empirically has been relatively little researched. Henceforth, this research aims to investigate the impact of spatial clustering of T&H firms on the labour productivity of hotels in the UK, thereby breaking new ground in understanding the determinants of productivity and tackling its challenges.



EFFECT OF CHARGE PLACEMENT ON FIBRE ORIENTATION, DISTORTION AND FAILURE OF A CARBON FIBRE REINFORCED SHEET MOULDING COMPOUND

Department of Mechanical Engineering Sciences (FEPS)

Samuel Kite

s.kite@surrey.ac.uk

Sheet moulding compounds (SMC) are being used extensively by automotive manufacturers to reduce the weight, and therefore emissions, of vehicles. Use of glass reinforced SMC to replace metallic body panels is widespread, but further weight savings require carbon fibre reinforced SMC (C-SMC) for structural and semi-structural uses. Glass SMC makes use of fillers to reduce the density, and thermoplastics to reduce warpage (this has been documented in previous research). For reasons of strength, these are not included in C-SMC, resulting in warpage of components made from this material. That fibre direction effects the warpage of polymer matrix composites has been verified by previous research, but with SMC materials the fibre orientation is random and heterogeneous. This is thought to lead to varying distortions.

This work examines the effect of charge placement on the fibre orientation distribution, and how this affects the distortion and failure of components made from this material. This has been done by moulding panels of the material with known charge placement. The distortion of these panels was then measured with a laser scanner. X-ray computed tomography (CT) was used to assess the fibre orientation distribution. Finally, tensile testing was carried out to failure with the full-field strains recorded via digital image correlation, allowing the development of strains to be compared to the local fibre orientation obtained from the CT images. This work has enabled better understanding of manufacture with C-SMC, in conjunction with an automotive manufacturer, allowing use of this material within new models in their range.



SPIRITUAL DIVERSITY IN RESIDENTIAL CARE FOR OLDER PEOPLE

School of Health Sciences (FHMS)

Olivia Luijnenburg

o.luijnenburg@surrey.ac.uk

Due to shifts in the economy, ageing of the population and migration, the care demand in the UK is changing. These changes are also reflected in residential care for older people. Because of issues such as a lack of education, the 'care-giver's burden' and the lack of acknowledgement for different spiritual needs, these changing demands more often than not stay unanswered. This poster will discuss the spiritual and religious diversity in residential care for older people. The ethical issues that arise in residential care

settings and ethical values to be considered relating to 'spirituality' in the care for an ageing and diversifying society will be explored. The spiritual needs of the care-recipient and the space and attention that are – or are not – given to these needs are central in this study. The topics will be discussed and illustrated through examples from an ethnographic study in several residential care settings with diverse spiritual backgrounds in Greater London.



EARLY STAGE DEVELOPMENT OF A TEST FOR DRUG LEADS AGAINST BURULI ULCER

Department of Chemistry (FEPS)

Eftychia Maria Mavrogiannaki

e.mavrogiannaki@surrey.ac.uk

Mycolactone is a toxin produced by *Mycobacterium ulcerans* which causes flesh-eating skin ulcers called Buruli ulcer. It has recently been discovered that MycA/B works by blocking the ‘flow’ of new proteins out of the cell or into its membrane (protein translocation) through a “door” called Sec61. We plan, in the long-term, to discover a new Buruli ulcer drug which works by inhibiting binding of MycA/B to Sec61 without affecting natural translocation. Discovery of such a molecule requires a test (assay) to measure the extent of MycA/B-Sec61 binding and this requires a fluorescent version of MycA/B to be made. However, MycA/B synthesis requires at least 37 chemical reactions and the slow and hazardous growth of *M. ulcerans* precludes its isolation. We are therefore

developing a semi-synthesis of MycA/B from the analogous mycolactone F (MycF) which can be isolated from the faster-growing, and less pathogenic to humans, *Mycobacterium marinum*. These molecules share the same core so only the sidechain of MycA/B requires synthesis and swapping for that of MycF. The side chain, could be described as a two-piece puzzle consisting of a polyene and a triol precursor. The polyene can be synthesized by a systematic building construction method, while the triol precursor requires a more traditional set of chemical reactions. Once an efficient route is established, it will be modified to include a fluorescent tag on MycA/B to allow it to stimulate a signal when it is binding to Sec61, or not when inhibited from binding by a potential drug lead.



INCHWORM-LIKE INTESTINAL ROBOT

Shanghai Jiao Tong University (Santander Universities Award)

Yicun Meng

yicun.meng@sjtu.edu.cn

Gastrointestinal diseases are regarded as one of the highest morbidity disease for mankind. Since the best method to deal with the gastrointestinal disease is early detection and early treatment, so increasing the detection efficiency of the devices is important for curing gastrointestinal diseases. However, the invasive feature of the traditional endoscopy limit the detection efficiency. In 2001, the Given Imaging Company developed a noninvasive capsule endoscope to transmit image information from gastrointestinal. Due to the lack of active locomotion capability, the robotic endoscopy which could move actively in the gastrointestinal is exploited by the researchers. According to the different locomotion types, the robotic endoscope can be divided into three kinds. The first one is imitated the bionic movement such as inchworm-like locomotion, polypod and paddle locomotion.

The second kind is driven by external force like magnetic force. And the third kind is the combination of the two above-mentioned kinds. The inchworm-like intestinal robot exploited by our laboratory can be divided into three parts, the mechanical structure, wireless communication and wireless power supply. As for the mechanical structure design, a new-type mechanical expanding structure is exploited to achieve the variable diameter ratio (3.27). And it is used to fix the robot in the intestinal environment. The details will show in the poster. The communication control system consists the upper computer, image receiver, command/data transceiver, the camera integrated in the robot and communication control board. The wireless energy transfer technology is based on the near-field inductive coupling principle to provide energy for the robot.



EFFECTS OF INTERACTION BETWEEN CEMENTITIOUS MATERIALS AND GROUNDWATER

Department of Chemistry (FEPS)

Emily Rastrick

e.rastrick@surrey.ac.uk

In the UK, the current concept is to dispose of low and intermediate level radioactive waste within a multiple barrier system containing cementitious materials. One use of cementitious materials is to condition inflowing groundwater to high pH, thereby reducing solubility of certain radionuclides. A second mechanism is the interaction of radionuclides with the cementitious materials. This leads to reduced mobility of radionuclides and limits migration into the biosphere. However there is a concern that the influx of groundwater will degrade the cementitious materials, compromising radioactive waste containment. Existing literature states that degradation is due to formation and dissolution of cement material phases following interaction with groundwater ions, such as chloride and sulphate. The aim of this research is to determine the effects of interaction between

cementitious materials and groundwater in order to apply to an experimental timescale. In the research, the cements studied include ordinary Portland cement, a ground granulated blast furnace slag: ordinary Portland cement mix, Nirex Reference Vault Backfill material and a Cebama reference cement blend. The groundwaters under investigation emulate granitic, clay and saline host rock environments. New methodology has been employed to study all aspects of groundwater transport which can occur, such as diffusion and advection. These novel methods help to advance knowledge in this field. This research can also influence areas of construction, in addition to the niche area of radioactive waste disposal, by the determination of timescales for groundwater attack to have detrimental effects on building materials.



THE LANGUAGE OF PAIN OF BRAZILIAN INDIGENOUS CHILDREN

Federal University of Goiás (Santander Universities Award)
Pamela Roberta de Oliveira

Pain is singular and can only be described with details and meanings by those who experience it. Language is a means to express the specific qualities of each painful sensation (pain descriptors). Studies have confirmed that ethnicity and race vulnerability can be a risk factor for inadequate analgesia, which may be aggravated by the subjectivity of pain. This study aims to identify pain descriptors in the narratives of Brazilian indigenous children, transculturally adapt these descriptors to Brazilian Portuguese and characterize them in the three dimensions of the painful experience (sensory-discriminative, motivational-affective, and cognitive-evaluative). This is methodological, descriptive study, with a qualitative and quantitative approach, will be developed in the state of Mato Grosso, Brazil, in three stages: identification and definition of the pain descriptors in the Xavante

indigenous language; transcultural adaptation of these descriptors to Brazilian Portuguese; categorization of the descriptors in the different dimensions of the painful experience. It is also our intention to display a poster on the research, because the identification of pain descriptors among Brazilian indigenous children is innovative in the context of the “Breaking New Ground” conference as it values culture and ethnicity in the world scenario of the scientific knowledge production on pain, in addition to playing an important social role by valuing transculturality in the care of children who are vulnerable to health complications. Other contributions include understanding the diagnosis and choice of the most appropriate analgesic therapy, reducing suffering, optimizing success in invasive procedures and reducing the length of hospital stay.



SYNERGISTIC INTERACTIONS BETWEEN MIXTURES OF QUERCETIN, DIHYDROCAFFEIC ACID AND SULFORAPHANE ON THE PROLIFERATION OF HUMAN COLORECTAL ADENOCARCINOMA CELLS (CACO-2) AND HUMAN PRIMARY COLONIC EPITHELIAL CELLS (HCEC)

School of Biosciences and Medicine (FHMS)

Maryam Thabit

m.thabit@surrey.ac.uk

Colorectal cancer (CRC) is the third most common type of cancer and the fourth most common cause of cancer-related death worldwide. The incidence of CRC is higher in more developed regions than in less developed regions and it is also higher in males than females. These and other data suggest CRC may be amenable to improved prevention by suitable lifestyle interventions, including dietary modification (Amin et al. 2009). Candidate dietary components that may prove beneficial in this regard include the polyphenols and phenolic compounds. These are secondary metabolites and the most abundant groups of phytochemicals found in a wide variety of foods, such as fruits, vegetables, coffee, and tea (Ozdamar et al. 2016). This study aimed to investigate whether synergistic interactions occur between mixtures of quercetin, dihydrocaffeic acid and sulforaphane in terms of potential anti-proliferative/cytotoxic activity in human colon adenocarcinoma cells (Caco-2) and compared the effects observed in the cancer cell line with those in primary human colonic epithelial cells (HCEC). Quercetin and sulforaphane had concentration and time-dependent cytotoxic effects on Caco-2 cells (IC₅₀ 50µM and 32µM, for quercetin and 45µM and 20µM for sulforaphane after 24 and 48 h, respectively).

Dihydrocaffeic acid only showed any detectable cytotoxic effect at the highest concentration tested with the Caco-2 cells. Combinations of the phytochemicals exhibited even greater cytotoxic effects in Caco-2 cells. While sulforaphane showed a very similar cytotoxic effect in HCEC and dihydrocaffeic acid had little if any effect, quercetin had no detectable cytotoxic effect on HCEC, in marked contrast to its effect in Caco-2 cells. Moreover, dihydrocaffeic acid appeared to protect HCEC against the cytotoxic effect of sulforaphane. Flow cytometric analysis revealed that apoptosis was the major route of cell death in Caco-2 cells exposed to the phytochemicals. In addition, measurement of reactive oxygen species (ROS) generation revealed that tert-butyl hydroperoxide increased ROS by 65-fold compared to controls while the different concentrations of phytochemicals, both individually and in combination, induced ROS production up to 7-fold. LC-MS/MS analysis of media samples and cell extracts at varying times after addition of quercetin or dihydrocaffeic acid confirmed some uptake of these compounds by the Caco-2 cells but also revealed rapid removal or degradation of both from the media/cell system. Together, these data suggest the three phytochemicals each exhibit unique and distinct effects in CRC and primary colon cells.



WHEN DO WE LEARN? THE IMPORTANCE OF EXPERTNESS AND WORK TEAM IDENTIFICATION IN TEAMS WITH HIGH AND LOW LEVELS OF PSYCHOLOGICAL SAFETY

Surrey Business School (FASS)

Francisco Javier Trincado Munoz

d.trincadomunoz@surrey.ac.uk

Traditionally, experts have been a cornerstone of an effective teamwork because of the resources that they provide for teams achieving their aims. Team members should learn from their more expert peers to improve their own work and, in turn, their team performance. However, research on team learning has been rather limited when it comes to how one member learns from another team member (Wilson, Goodman, & Cronin, 2007). Researchers assume that individuals learn from the most expert peers (Bunderson, 2003; Van der Vegt & Bunderson, 2006), yet this is not always true. This study aims to explore “when and from whom do team members learn?” To do so we will look at learning as a dyadic process using a social network approach (Borgatti, Brass, & Halgin, 2014). In particular,

we included individuals’ expertness – their level of expertise- and work team identification – their feeling of belongingness to their team – as important factors that increase the preferences of individuals to learn from each other. Furthermore, we incorporated group psychological safety to test the strength of the reviewed relationships. Hypotheses were tested with a longitudinal analysis of the actor-oriented learning networks in 36 work teams using a Multilevel SIENA in R. Although learning from experts seems obvious for team members, our results break new grounds showing that team members prefer to learn from more expert peers but this is contingent to the group psychological safety and the experts’ capacity to commit with their teamwork and goals.



IDENTIFICATION OF DENGUE VIRUS IMMUNODEFICIENCY PATHWAY ANTAGONISTS IN AEADES AEGYPTI CELLS

School of Biosciences and Medicine (FHMS)

Louisa Elizabeth Wallace

l.wallace@surrey.ac.uk

Dengue virus (DENV) is the most significant arthropod-borne virus (arbovirus) of humans with *Aedes aegypti* being its major mosquito vector for transmission. There are currently no specific therapeutics and the existing DENV vaccine exhibits limited efficacy. Therefore, vector control remains the best approach to manage the spread of disease. Studying molecular barriers of arbovirus transmission in disease vectors may allow these to be exploited to prevent human disease. One major barrier is the mosquito innate immune response, which includes the immunodeficiency (IMD) pathway, an NF- κ B-inducible pathway implicated in *Ae. Aegypti* antiviral immune responses. Our laboratory previously demonstrated that DENV-2 infection does not induce IMD signalling in the *Ae. aegypti* Aag2 cell line, recapitulating in vivo data from other research groups. Moreover, infection with DENV-2 reduces subsequent

IMD activation by classical immune stimuli such as heat-inactivated bacteria. This project aims to identify the DENV-2 protein(s) responsible for this antagonism by establishing an RT-qPCR-based screening platform in which IMD signalling is stimulated in cells transfected with plasmids expressing DENV-2 proteins individually or in combination. Once identified, the IMD antagonist(s) can be used to enhance our understanding of *Ae. aegypti* antiviral immunity by investigating its interaction and localisation with its cellular targets. Ultimately, we will use our first-in-field CRISPR knockout mosquito cell lines to confirm the relevance of these interactions during viral infection. These insights may contribute to the development of genetically modified transmission-incompetent mosquitoes, which will ultimately reduce the global burden of dengue disease.



MINING SECTOR CORRUPTION THREATENS SUSTAINABILITY

Surrey Business School (FASS)

Madeline R Young

M.young@surrey.ac.uk

Global concern about sustainability and the risks of non-renewable natural resource industries is growing steadily, particularly in the land and labour-intensive mining sector. People and the natural environment are exposed to significant harm when mining projects are not managed with sustainability in their design. However, the current discourse of this field revolves around high-level relationships between government regulators, industries, countries and international organisations while largely ignoring the very real impact of corporate leadership that intentionally engages in unethical practices for the sake

of profit. Affluence and accelerated material consumption appear to be strongly correlated to negative sustainability outcomes, while also motivating corporate corruption to further wealth. Corruption is presented as an unethical corporate tool that enables companies to cut through legislation designed to address sustainability risks. This article analyses how corruption negatively influences sustainability and why it requires further consideration to better address social and environmental problems caused by the mining industries.



8413-0218

UNIVERSITY OF SURREY

Guildford, Surrey GU2 7XH, UK

facebook.com/universityofsurrey

[twitter: @uniofsurrey](https://twitter.com/uniofsurrey)

youtube.com/universityofsurrey

surrey.ac.uk



DOCTORAL COLLEGE

UNIVERSITY OF SURREY

Disclaimer

We've made all reasonable efforts to ensure that the information in this publication was correct at the time of upload in June 2018, but we can't accept any liability for any inaccuracies in the information published, and the information might change from time to time without notice.

For the latest and most up-to-date information, please visit our website at: surrey.ac.uk