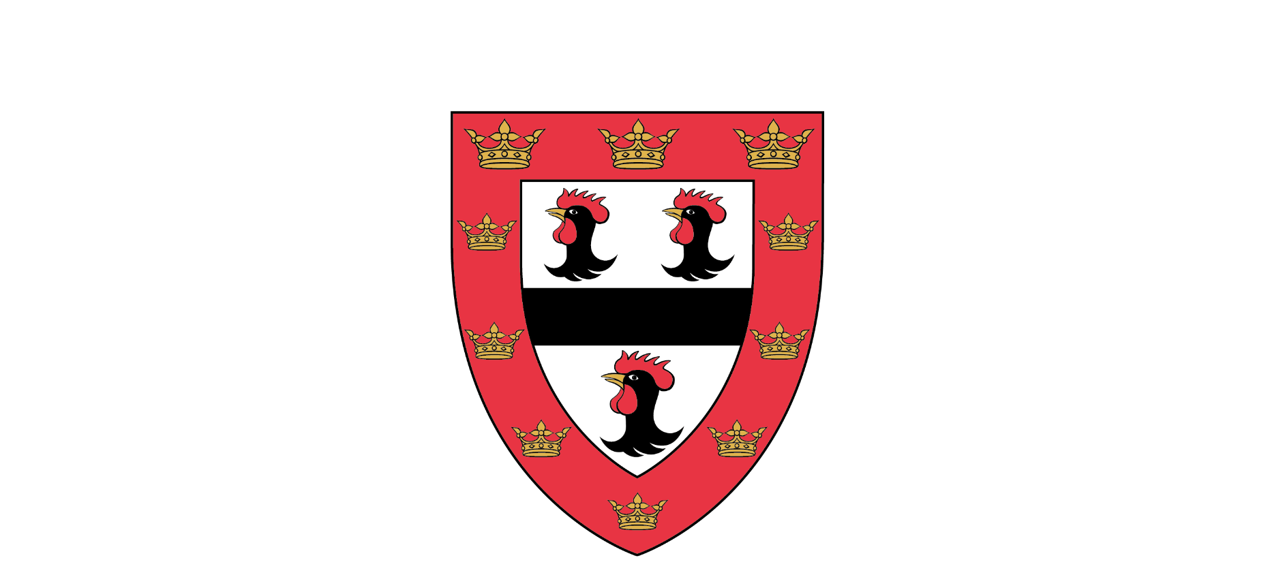
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**Jesus College**

**Graduate Conference 2021**

**SATURDAY 6th MARCH**

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Log in Instructions

Here are the joining instructions:

[**https://gather.town/app/elLRMSRY1Y0WTMvG/mcrgraduateconference**](https://gather.town/app/elLRMSRY1Y0WTMvG/mcrgraduateconference)

**Password: Jesus2021**

Essentials for logging in:

* The platform does not work well on a tablet or smartphone, it is suggested to use a laptop or desktop computer
* The platform is supported on the web browsers Chrome and Firefox, not Internet Explorer or Safari.
* If using a laptop make sure it is plugged in as Gather.town uses more battery than a Zoom call equivalent

Help is available!

* If you can’t get into Gather.town or it isn’t working, email Mark Cresswell who is providing tech support all day on: [av-technician@jesus.cam.ac.uk](mailto:av-technician@jesus.cam.ac.uk)
* If you’re in Gather.town and you have any problems and you can access the chat – message the user named “Tech Support (Mark)”.
* Please see the Gather.town extra guidance on page for help

Conference Schedule

|  |  |  |
| --- | --- | --- |
| TIME | SESSION | LOCATION |
| From 11:00 | Drop in to look at Exhibits (non structured) | Gather.town – Lobby |  |
| 12:00-12:50 | Lunch – takeaway | Forum (Jesus College) |  |
| 12:30-13:00 | Mingle time and exhibition viewing | Gather.town – Lobby |
| 13:00-13:15 | Welcome and Introduction by Richard Thomas and the Master | Gather.town – Main Stage |
| 13:15-14:15 | 1st Oral Presentation Session | Gather.town – Main Stage |
| 14:15-15:15 | Poster Presentation Session | Gather.town – Poster Room |
| 15:15-16:25 | 2nd Oral Presentation Session | Gather.town – Main Stage |
| 16:25-16:45 | Social break and exhibition viewing | Gather.town – Lobby |
| 16:45-17:00 | Prize Giving Ceremony | Gather.town – Main Stage |

Welcome

It gives me great pleasure to introduce this year’s graduate conference, an event that has always been a highlight of the MCR calendar. This year proves to be no different with the receipt of such a large number of high quality submissions, the details of which can be found enclosed in this programme.

Once again the subjects covered represent the breadth of intellectual curiosity within the College, something that I believe continues to be one of our greatest strengths.

The main difference this year is that this conference will be held on the virtual platform Gather.town!

Thank yous

Today’s programme of events would not have been possible without the help and support of a large number of people to whom I am extremely grateful. In particular, I would like to thank the MCR committee and the previous academic officer, Laura Taylor, for their help in the organisation and for their useful suggestions throughout the year.

A special thanks must go to the graduate tutorial team, Prof. Tim Wilkinson, Dr Michael Edwards and Dr. Sybil Stacpoole. Thank you to the Dr Kim C. Liu and Dr James Perry for their help in chairing the Oral Presentation Sessions, and to Dr Emily Stoakes, Dr Hjördis Becker-Lindenthal, Dr Alexander J. Boys and Dr Clarissa Rios Rojas for their judging of the poster presentations. I would also like to thank Alexis Moreau and Mark Cresswell for a great deal of help and to Mark for offering tech support all day on the day today. I would like to thank Iain Sutherland and the kitchen team for making lunch on Saturday possible. I am also grateful to Dr. Julian Huppert, the Director of the Intellectual Forum, for his advice.

The exhibits within Gather.town owe great thanks to Robert Athol, College Archivist, for creating a virtual exhibition on Art and Architecture in Jesus College, to James Crockford and Pippy the Dog, to Fred Kelly, author of the May Vial and to Richard Pinel, Director of Music for contributions of music from the Choir.

I would also like to thank the Master for being extremely supportive towards the events and to Richard Thomas for opening the conference and speaking to us.

Finally, I am extremely grateful to all of the presenters who will be discussing their research throughout the day, it is clear they have all put in an enormous amount of work and it is much appreciated. I hope you all enjoy the day and I thank you for taking time out of your Saturday to participate.

Hannah Charlotte Copley

Jesus College MCR Academic Officer, 2021

Conference Map

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**Main Stage**

**Lobby**

**POSTER ROOM**

Welcome and Introduction with Richard Thomas

13:00-13:15

*Location: Gather.town – Main Stage*

We are delighted to be joined by Richard Thomas to open and introduce the conference.

Richard Thomas is the Olivier award-winning creator/composer of “JERRY SPRINGER-THE OPERA” (National Theatre, Cambridge Theatre, Carnegie Hall, BBC2, Sydney Opera House, Off-Broadway).

He wrote book and lyrics for hit opera, “ANNA NICOLE.” (Royal Opera House, BAM New York, BBC 2, Nuremberg, Dortmund).West End credits also include lyrics for “MADE IN DAGENHAM” (Adelphi Theatre) music and lyrics for the dance show, “SHOES” (Sadlers Wells, Peacock).Richard is the creator of “KOMBAT OPERA PRESENTS….” five award-winning half hour comic musicals produced for BBC2 which won two Rose D’OR Internationals TV awards. Recently he has co-written all songs for two seasons of “THE TRACEY ULLMANN SHOW” (BBC1, HBO, twice-Emmy nominated); adapted lyrcis for Lehar’s “THE MERRY WIDOW” (ENO Coliseum) and composer lyricist for National Theatre of Scotland and BOP’s multi award-winning “MY LEFT RIGHT FOOT- THE MUSICAL” (Edinburgh Festival, Shizuoka World Theatre Festival) and “THE DIVINE MS JAYDE” at the Soho theatre, and “JONNY WOO’S ALL-START BREXIT CABARET” (Edinburgh and ENO Coliseum, Soho theatre).

Richard started out in Comedy in a double act touring nationally and internationally and working as composer/ music director for Harry Hill (national tour) Stewart Lee and Richard Herring (two BBC2 series and national tour) Frank Skinner (five seasons BBC1, ITV), Simon Munnery (BBC2 Series “Attention, Scum”) and Robert Newman (national tour).

In lockdown Richard wrote a piano piece for the Guggenheim NYC, “The Covid-19 Variations” and is currently composing a series of solo musicals, “Singing Heads” for New Group in New York, a new musical about art, and “Rock Bottom- the AA Musical” an addiction musical for the Young Vic.

1st Oral Presentation Session Summary

13:15-14:15

*Chair: Dr Kim C. Liu*

*Location: Gather.town – Main Stage*

**13:15 - 13:25 Dimitris Spathis** (PhD in Computer Science)

AI to model human behaviour and health

**13:25 - 13:35 Sophie Niang** (PhD in Sociology)

Afro Trap part 1: World making, identity and Afropean music in France

**13:35 - 13:45 Jonathan Barnard** (PhD in Chemical Engineering)

Bubble plumes in stratified fluid: Insights into oceanic methane and runaway climate change

**13:45 - 13:55 Yufei Li** (PhD in Architecture)

Atlas in Motion: Visualising Manchuria through Moving Images

**13:55 - 14:05 Hannah Charlotte Copley** (PhD in Surgery)

Effect Of HLA Class II Polymorphism On Predicted Cellular Immunity Against SARS-CoV-2 At The Individual Level And Within Twenty Five Race/Ethnic Groups

**14:05 - 14:15 Shiyu Deng** (PhD in Physics)

Novel Phase Emergence in “magnetic graphene” FePS3

1st Oral Presentation Session - Abstracts

**Oral Presentation 1 (1st Oral Presentation Session) - 13:15 - 13:25**

**AI to model human behaviour and health**

***Author(s): Dimitris Spathis***

Supervisor(s): Cecilia Mascolo (2nd supervisor: Jason Rentfrow), Course: PhD in Computer Science, Year of Matriculation / Joining MCR: 2017

While our online behaviour is constantly analyzed, we lack tools that capture and make sense of our offline behaviour at scale. Wearables and smartphones generate massive traces of real-world behaviour, but gaining insights requires a combination of new Artificial Intelligence (AI) methods and understanding data limitations. My research proposes new methods for understanding, predicting, and improving human well-being.

Unlike recent advances of AI in vision (self-driving cars), speech (Alexa) and language (Google Translate), mobile data requires different modelling due to its density and noise. Representation learning has sparked off great advances in AI, for instance, the lower-dimensional, semantically meaningful representations of image datasets learned by convolutional neural networks. The main hypothesis of my work is that it is also well suited to this task: e.g. using mobile sensors to predict your mental health, your activity status, vital signs, or even diagnose COVID-19 through your coughs.

The main proposed methods build upon a wide area of AI techniques: deep neural networks, transfer learning, time-series forecasting, dimensionality reduction, and self-supervised learning. During the course of my PhD, I proposed domain-specific and general methods. For mental health prediction, combining different mobile sensors into a low dimensional embedding and clustering longitudinal user trajectories outperformed traditional questionnaires. Furthermore, a novel encoder-decoder model exploited the bi-modality of mood with multi-task learning, enabling more accurate mood forecasting. On the other hand, the general methods revolve around transfer learning. Namely, I developed a self-supervised model that maps smartwatch movement to cardiovascular responses, whose representations carry richer information than simple bio-markers. Researchers and practitioners can use it to infer various population health attributes (such as BMI, fitness, gender, sex, etc) and inform clinical interventions.

My work's main contributions involve new AI models towards better modeling of mental health, fitness and cardiovascular health, and infectious diseases.

**Oral Presentation 2 (1st Oral Presentation Session) - 13:25 - 13:35**

**Afro Trap part 1: World making, identity and Afropean music in France**

***Author(s): Sophie Marie Niang***

Supervisor(s): Dr Ali Meghji, Course: PhD in Sociology, Year of Matriculation / Joining MCR: 2020

This paper is an exploration of the worldmaking possibilities of African influenced Francophone rap and pop music. In France, postcolonial citizens are prevented from full integration into the national identity because “Frenchness” is racialised as white. Afropean citizens therefore find themselves in a liminal position, which leads them to engage in worldmaking practices in order to claim this liminality. Looking at a small exploratory corpus, which focuses on the works of rapper MHD and singer Aya Nakamura, I ask what can be learned about liminal Afropean identities by listening to sound. Building on Fatima El-Tayeb’s work on queering ethnicity in Europe, I argue that the affective capacities of sound offer a different way of thinking about Blackness in France, beyond the opposition between Blackness and Frenchness created by Republican Universalism. Using autoethnography as a guide for affective listening, I show that taking rap and pop music seriously can teach us about the possibilities of being French otherwise, created and enacted by Afropean subject.

**Oral Presentation 3 (1st Oral Presentation Session) - 13:35 - 13:45**

**Bubble plumes in stratified fluid: Insights into oceanic methane and runaway climate change**

***Author(s): Jonathan Barnard,*** *Arna Sigurðardottir, Prof. Silvana Cardoso*

Supervisor(s): Prof. Silvana Cardoso, Course: PhD in Chemical Engineering, Year of Matriculation / Joining MCR: 2017

Over the past decade, giant plumes of methane have been discovered throughout the world’s oceans. Concerns have been raised regarding the potential for significant quantities of this greenhouse gas to escape the water column and discharge into the atmosphere. We have created a laboratory analogue of these plumes and have conducted experiments to investigate the spreading and mixing behaviour of these flows in a stratified environment. Concentration measurements within the radial currents spreading from the plume suggest an extended mixing region beyond the plume radius. Within this mixing region, the concentration of dissolved species decays from a maximum value to a constant at large distances. Motivated by these results, we developed a simple model characterised by a dimensionless diffusion coefficient to predict the intrusion concentration for any given radius. We also compare intrusion spreading to scaling terms and find that the multiple intrusions produced by bubble plumes spread much slower than similar currents originating from single-phase plumes. When considering the real-world implications, these observations favour the presence of methane-rich seawater close to the plume. This may reduce bubble dissolution and promote the direct transport of methane into the atmosphere.

**Oral Presentation 4 (1st Oral Presentation Session) - 13:45 - 13:55**

**Atlas in Motion: Visualising Manchuria through Moving Images**

***Author(s):*** ***Yufei Li***

Supervisor(s): Prof. François Penz, Course: PhD in Architecture, Year of Matriculation / Joining MCR: 2018

Moving images offer us opportunities to sense a place of other space and times. The mimetic nature of film gives it the ability to create a place in cinematic geographies that is bonded to the particular time and spatial coordinates and tinted with historical and social contexts. As a practical example of such virtual recreation, a specific group of films were produced during the period of the 1930s-40s, all serving a place-making purpose: to portray a territory named Manchuria.

Manchuria, corresponded roughly to the Northeast China region, suffered from international conflicts and conquered by Imperial Japan from 1932 to 1945. While Japanese architects planned its cities as a dreamscape of Far East modernisation, political architects relied on the use of media in cultural construction, to promote the region towards the wider world. Films, produced by the Manchuria Film Association (1937—1945) and its affiliated institutions, mapped out Manchuria in a collection of moving images featuring its urbanscapes, customs and daily lives. However, after the Japanese retreated in 1945, the region's colonial past as Manchuria remains distant from the mainstream historical accounts of modern China, despite the glorious propaganda on screen.

How was the place lived, experienced and picturised? Can we visualise its past, through film as a 'live' medium? How has the absent Manchuria shaped the current cultural identity of Northeast China? With these questions in mind, this research uses film as a medium to contribute to the visual and experiential depictions of a place in its past, in this case of mapping the historical geography of Manchuria in a collection of moving images. The research sources available Manchuria films produced between 1937 and 1945 as the materials to illustrate the cinematic ukiyo-e of Manchuria in the light of its contemporary urban cultural regeneration.

**Oral Presentation 5 (1st Oral Presentation Session) - 13:55 - 14:05**

**Effect Of HLA Class II Polymorphism On Predicted Cellular Immunity Against SARS-CoV-2 At The Individual Level And Within Twenty Five Race/Ethnic Groups**

***Author(s):*** ***Hannah Charlotte Copley****, Loren Gragert, Andrew Leach, Vasilis Kosmoliaptsis*

Supervisor(s): Vasilis Kosmoliaptsis, Andrew Leach, Course: PhD in Surgery, Year of Matriculation / Joining MCR: 2019

**Purpose**: Development of adaptive immunity after COVID-19 and after vaccination against SARS-CoV-2 is predicated on recognition of viral peptides, presented on HLA class II molecules, by CD4+ T-cells. The aim of this study was to investigate the role of HLA polymorphism on SARS-CoV-2 immunogenicity at the population and the individual level.

**Methods**: We capitalised on extensive high-resolution HLA data from 8.9 million donors in the NMDP/BeTheMatch registry to estimate HLA Class II haplotype frequency distributions for twenty five human race/ethnic populations. This information was used to generate multi-locus HLA class II genotypes for each population group (ten random samples of 10,000 individuals for each population). NetMHCIIpan4.0 was used to assess peptide presentation from the entire SARS-CoV-2 Proteome.

**Results**: Within populations, we found wide inter-individual variability in predicted CD4+ T-cell reactivity against structural, non-structural and accessory SARS-CoV-2 proteins, according to individual HLA genotype. This was particularly pronounced for Nucleocapsid and specific non-structural proteins, whereas robust reactivity against Spike, the main vaccination target, was predicted despite significant variation in Spike-derived peptide presentation by individual HLA genotypes (Figure 1). Notably,

we found similar potential for anti-SARS-CoV-2 cellular immunity at the population level suggesting that HLA polymorphism is at the population level suggesting that HLA polymorphism is unlikely to account for observed disparities in clinical outcomes after COVID-19 among different race/ethnic groups.

**Conclusions**: Our findings provide important insight on the potential role of HLA polymorphism on development of protective immunity after SARS-CoV-2 infection and after vaccination and a firm basis for further experimental studies in this field.

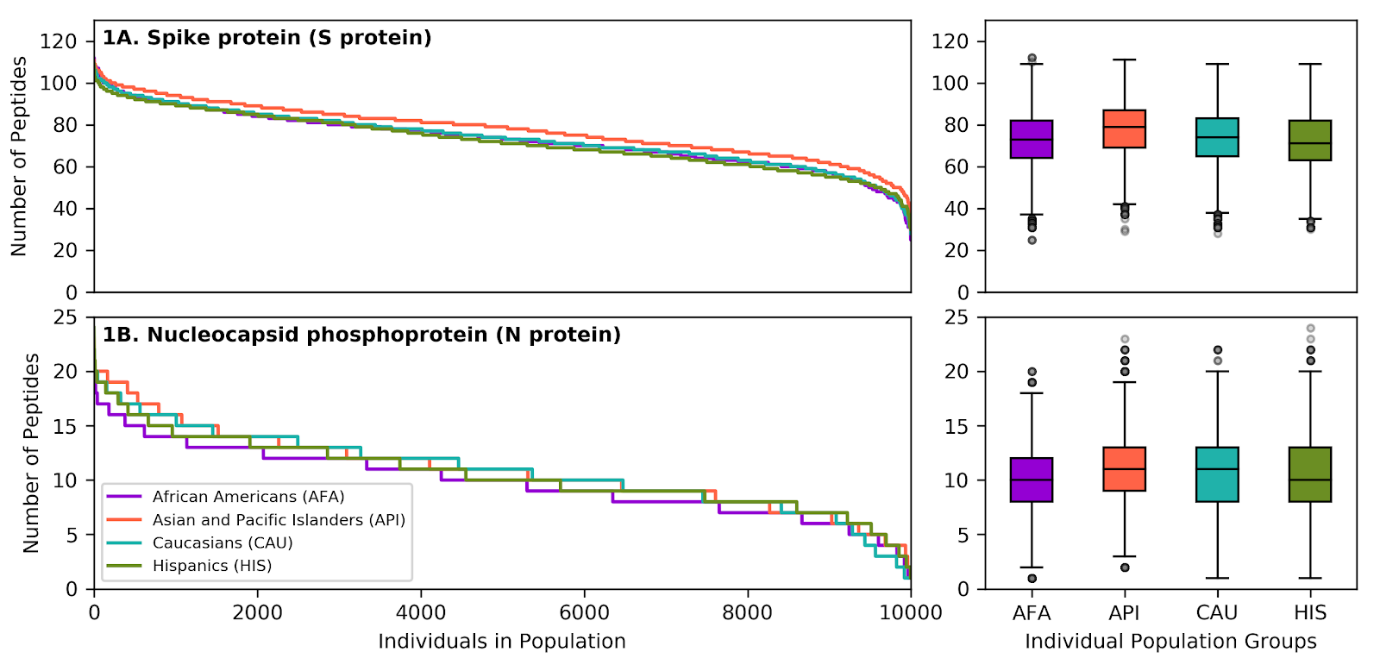


Figure 1. Panels depict the number of SARS-CoV-2 peptides presented by individual HLA class II genotypes in simulated populations of 10,000 individuals for four broad population groups (African Americans, Asian and Pacific Islanders, Caucasians and Hispanics) for 1A. Spike Glycoprotein, 1B. Nucleocapsid phosphoprotein.

**Oral Presentation 6 (1st Oral Presentation Session) - 14:05 - 14:15**

**Novel Phase Emergence in “magnetic graphene” FePS3**

***Author(s):*** ***Shiyu Deng***

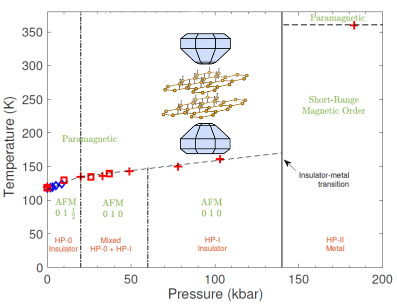
Supervisor(s): Dr Siddharth S Saxena, Course: PhD in Physics, Year of Matriculation / Joining MCR: 2019.

Imagine using the same pencil for writing on paper as well as on a specially designed screen. Such a “magic material” could be mechanically flexible and form a new kind of circuit for storing information and performing computation. Welcome to the world of “magnetic graphene,” which also changes its properties drastically when put under pressure or strain. Here, we present the high-pressure study of an example of magnetic graphene, FePS3, which transitions from an insulator to a metal when compressed [1], [2], [3].

This class of magnetic materials offers new routes to understand the physics of novel magnetic states and superconductivity. Through the deployment of revolutionary high-pressure techniques, we have unveiled the evolution of magnetic ordering in FePS3 through its insulator-metal transition and into the unconventional metallic state.

These first-of-their-kind studies have uncovered exotic new states and behaviours. We suspect that this newly discovered high-pressure magnetic phase most likely forms a precursor to superconductivity.

New quantum technologies and devices are needed to meet the emerging challenges of conventional electronics reaching their limits and a drive for more energy-efficient alternatives. 2D materials provide a promising candidate, through novel transistor designs and spintronics, which uses currents of magnetism instead of electricity to transfer information. To design and use these systems at an application level, it is essential that the underlying physics, including both the limitations and possibilities intrinsic to the materials are fundamentally understood and tested, and routes to synthesising new designer materials uncovered.



[1] C. R. S. Haines, et al., Phys. Rev. Lett. 121, 266801 (2018).

[2] M. J. Coak, et al., J. Phys. Condens. Matter 32, 124003 (2020).

[3] M. J. Coak, et al., Phys. Rev. X 11, 011024 (2021).

Poster Presentation Session Summary

14:15-15:15

*Judges: Dr Emily Stoakes, Dr Hjördis Becker-Lindenthal, Dr Alexander J. Boys, Dr Clarissa Rios Rojas*

*Location: Gather.Town – Poster Room*

**Poster 1: Fatima Eshani** (Clinical Medicine (MB BChir)

What should we advise young women about their fertility after treatment for cancer?

**Poster 2: Shanshan Xie** (PhD in Architecture)

An Early Stopping Bayesian Data Assimilation Approach for Mixed-Logit Estimation

**Poster 3: Chris Green** (PhD in Clinical Neurosciences)

Degrading big things in a small world: Antibody-dependent Intracellular Neutralisation

**Poster 4: Alice McDowell** (PhD in Biochemistry)

How do sleeping sickness parasites interact with components of mammalian blood?

**Poster 5: Elizabeth Brown** (PhD in Chemistry)

Phage Display: One Big Game of "Where's Wally?"

**Poster 6: Jasper Sim** (PhD in Theoretical and Applied Linguistics)

Variation in quality of input and development of coda stops in bilingual children

**Poster 7: Niall Devlin** (PhD in Physics)

Dirac Quantum Wells at Domain Walls in Antiferromagnetic Topological Insulators

Poster Presentation Session Abstracts

**Poster Presentation 1 (Poster Presentation Session) - 14:15 - 15:15**

**What should we advise young women about their fertility after treatment for cancer?**

***Author(s):*** ***Fatima Eshani***

Supervisor(s): Dr Jane MacDougall, Course: Clinical Medicine (MB BChir), Year of Matriculation / Joining MCR: 2020

**Objective:** Patients that have received cancer treatment have diminished ovarian reserve and are unlikely to conceive naturally. Current literature exists suggesting anti-Mullerian hormone (AMH, units = pmol/L) levels, a measure of ovarian reserve, can increase post-treatment. Through a case series, we aim to provide more supporting evidence for this and discuss 3 instances where patients in this cohort became pregnant naturally.

**Design:** A retrospective case study series design was used to investigate this population's AMH post-cancer treatment.

**Method:** This retrospective study was conducted in the gynaecology department of a major hospital. 29 patients of reproductive age, who had been diagnosed and treated for various types of cancers were identified with 2 or more AMH measurements taken post-treatment. Patients were excluded in cases where only 1 AMH measurement was present.

**Results:** Out of the 29, 3 (10.3%) became pregnant naturally. 21 of the 29 (72.4%) AMH measurements increased over time post-treatment, 6 (20.7%) remained constant below <1.0 and 2 (6.9%) AMH levels decreased. One patient gave birth 3 years ago. Their AMH had risen from <1 to 10.2 over 4 years post-treatment, the baby was born at 32 weeks, 2 years post-treatment due to the patient's cardiomyopathy. One patient had an abortion at 8 weeks due to personal issues, her AMH <1.0 to 1.4 over 1-year post-treatment. The final patient is currently in her first trimester, AMH rising from 4 to 15.9 over 4 years post-treatment.

**Conclusions:** From our results many patient’s post-treatment for cancer demonstrate an increase in levels of AMH suggesting that ovarian reserve can increase over time. Patients can also successfully become pregnant following treatment for cancer. This information is helpful when counselling patients about their fertility following treatment for cancer. It is important to advise patients that they should use contraception if they do not want to conceive - as even with a very low AMH they can become pregnant.

**Poster Presentation 2 (Poster Presentation Session) - 14:15 - 15:15**

**An Early Stopping Bayesian Data Assimilation Approach for Mixed-Logit Estimation**

***Author(s):*** ***Shanshan Xie***

Supervisor(s): Dr. Ying Jin, Advisor: Dr. Tim Hillel, Course: PhD in Architecture, Year of Matriculation / Joining MCR: 2018

The mixed-logit model is a flexible tool in choice analysis, providing valuable insights into inter and intra-individual behavioural heterogeneity. However, applications of mixed-logit models are limited by the high data requirements for model estimation. When estimating mixed-logit models on small samples, the Bayesian estimation approach becomes vulnerable to over and under-fitting. This is problematic for investigating the behaviour of specific population sub-groups or market segments, where a modeller may wish to estimate separate models for multiple similar contexts, each with low data availability. Similar challenges arise when adapting an existing model to a new location or time period, e.g., when estimating post-pandemic travel behaviour.

To address the data and transferability issues of the mixed-logit model, this study proposes a new Early Stopping Bayesian Data Assimilation (ESBDA) simulator for estimation of mixed-logit which combines a Bayesian statistical approach with Machine Learning estimation methodologies. The ESBDA simulator is intended to improve the transferability of mixed-logit models and to enable the estimation of robust choice models with low data availability. This approach can provide new insights into people’s choice behaviour where the traditional estimation of full mixed-logit models was not previously possible due to low data availability, and open up new opportunities for investment and planning decisions support.

In two case-studies, we benchmark the ESBDA estimator against the Direct Application approach, a basic hierarchical Bayes simulator with random starting parameter values and a Bayesian Data Assimilation simulator without early stopping. The experimental results show that the proposed ESBDA approach can effectively overcome under and over-fitting and non-convergence issues in simulation. The resulting models from ESBDA clearly outperform those of the reference simulators in predictive accuracy. Furthermore, models estimated with ESBDA tend to be more robust, with significant parameters with signs and values consistent with behavioural theory, even when estimated on small samples.



Figure 1. Illustration of the iterative Bayes modelling process of ESBDA with an early stopping trigger

**Poster Presentation 3 (Poster Presentation Session) - 14:15 - 15:15**

**Degrading big things in a small world: Antibody-dependent Intracellular Neutralisation**

***Author(s):*** ***Chris Green***

Supervisor(s): Dr Will McEwan & Dr James Duce, Course: PhD in Clinical Neurosciences, Year of Matriculation / Joining MCR: 2019

Antibody-dependent intracellular neutralisation is a pathway utilised by cells to destroy invading viruses coated in antibodies, this process is dependent on the proteasome and TRIM21; a protein which binds antibodies in cells. Certain viruses can be much larger than the proteasome and a pre-processing step is required to disassemble or unfold the virus before degradation by the proteasome. The protein responsible for this unfolding is VCP; VCP is a protein with a huge number of roles across the cell and requires adaptors to specify its function. The aim of this work was to identify which VCP adaptor is involved in this viral unfolding. I developed an assay which recreated this process and lowered the expression of various VCP adaptors to identify the one involved in this pathway. This work will help us understand more about this signalling pathway which not only degrades large viruses but has also been shown to degrade tau fibrils which are implicated in Alzheimer's Disease.

**Poster Presentation 4 (Poster Presentation Session) - 14:15 - 15:15**

**How do sleeping sickness parasites interact with components of mammalian blood?**

***Author(s):*** ***Alice McDowell***

Supervisor(s): Dr Paula MacGregor, Course: PhD Biochemistry, Year of Matriculation / Joining MCR: Matriculation 2015, joined MCR 2018

African trypanosomes are single celled parasites that cause disease in humans and livestock. Trypanosoma congolense is one of the primary species responsible for Animal African Trypanosomiasis, and is a significant burden to livestock agriculture in sub-Saharan Africa. Unlike the parasites that cause diseases such as malaria, trypanosomes survive extracellularly in the host bloodstream, meaning their cell surface is in constant contact with components of mammalian blood. Invariant Surface Glycoproteins (ISGs) are a family of surface proteins found in African trypanosomes; my PhD aims to discover their function in T. congolense. Further, ISGs have recently diversified in T. congolense in comparison to the closely related trypanosome, T. brucei. Does the expansion of ISG genes in T. congolense correspond to functional diversity?

My research methods include phylogenetic analyses of the ISG family; molecular pull-down assays followed by mass spectrometry to identify binding partners of selected ISGs; surface plasmon resonance and Western blots to validate interactions; Northern blots and RNA Sequencing to determine the expression levels of ISGs; fluorescent tagging of ISGs in live cells and associated microscopy studies.

Phylogenetic analyses show that there has been a recent diversification of ISG genes in the T. congolense genome, in comparison to T. brucei. A preliminary screen has shown that several T. congolense ISGs have positive binding profiles to mammalian sera. Components of mammalian serum that may be binding partners of three T. congolense ISGs have been identified; validation and assessment of the specificity of these interactions is ongoing. Work to obtain T. congolense RNA from field isolates in Ghana has been postponed, but RNA Seq has been performed on cultured T. congolense parasites. The next stage of my research will focus on observing the role of selected ISG in live parasite cultures.

**Poster Presentation 5 (Poster Presentation Session) - 14:15 - 15:15**

**Phage Display: One Big Game of "Where's Wally?"**

***Author(s):*** ***Elizabeth Brown***

Supervisor(s): Dr Goncalo Bernardes (Department of Chemistry), Dr Peter Ravn (Astrazeneca), Course: PhD in Chemistry, Year of Matriculation / Joining MCR: 2019

In 2018, Professor George Smith and Sir Greg Winter won the Nobel Prize in Chemistry for the “phage display of peptides and antibodies”. Phage display is a high throughput screening method used for the study of protein-ligand or peptide-ligand interactions. The phage DNA is genetically engineered so that a protein or peptide is displayed on the surface of the phage particle, providing a physical link between phenotype (the displayed protein/peptide) and genotype (the encoding DNA). The ability to create libraries containing up to 1010 different phage variants provides a powerful tool to identify proteins or peptides with high affinity and specificity for a target of interest (e.g. a tumour cell). To date, phage display has been used to discover treatments for rheumatoid arthritis, psoriasis, inflammatory bowel disease and lung cancer. My work focusses on the design and construction of novel phage display libraries to identify new classes of highly selective protein or peptide inhibitors from highly diverse pools of candidate molecules.

**Poster Presentation 6 (Poster Presentation Session) - 14:15 - 15:15**

**Variation in quality of input and development of coda stops in bilingual children**

***Author(s):*** ***Jasper Sim***

Supervisor(s): Prof. Brechtje Post, Course: PhD in Theoretical and Applied Linguistics, Year of Matriculation / Joining MCR: 2018

Previous work has shown that variable production in bilingual children can be explained by differences in quantity of input, but less attention has been given to effects of qualitative differences on phonological acquisition. In this study, the English coda stop release patterns (i.e. whether or not there is a release burst at the end of words like park, stop, hat) of fourteen English-Mandarin bilingual mothers and their preschool children were examined acoustically, in order to ascertain whether variation in mothers’ production was also reflected in the production of their children. The analysis revealed a very strong statistically significant positive input–production relationship; mothers who released coda stops to a lesser degree also had children who tended to not release their stops, and the same was true for mothers who released their stops to a higher degree. The findings suggest that young children are sensitive to acoustic properties that are non-contrastive, and these properties are also reflected in their production, showing the importance of considering input quality when investigating bilingual production.

**Poster Presentation 7 (Poster Presentation Session) - 14:15 - 15:15**

**Dirac Quantum Wells at Domain Walls in Antiferromagnetic Topological Insulators**

***Author(s):*** ***Niall Devlin***

Supervisor(s): Prof. Crispin H. W. Barnes, Course: PhD in Physics, Year of Matriculation / Joining MCR: 2018

We explore the emergence of spin-polarised flat bands in the recently predicted class of antiferromagnetic topological insulators hosting planar magnetisation. We show, in the framework of quantum-well physics, that by tuning the width of the domain wall one can control the functional form of the bound states appearing across the domain wall. Furthermore, we demonstrate the affect that the parity of the number of layers in a multilayer sample has on the electronic dispersion. In particular, the alignment of the magnetisation vectors on the terminating surfaces of odd layer samples affords particle-hole symmetry leading to the presence of linearly dispersing topologically non-trivial states around E = 0. By contrast, the lack of particle hole symmetry in even layer samples results in a gapped system, with spin-polarised flat bands appearing either side of a material dependent band gap. The energy of this band gap is well within terahertz energy scales, making this an exciting platform to study the emergent physics resulting from strong correlations within these flat bands.

2nd Oral Presentation Session Summary

15:15-16:25

*Chair: Dr James Perry*

*Location: Gather.town – Main Stage*

**15:15 - 15:25 Michael Collins** (PhD in Architecture)

Exploring the transformative potential of urban agriculture within architectural theory and practice

**15:25 - 15:35 Amy Ainsworth** (PhD in German)

Unearthing the ecoGothic in Literary Plant Life of the Early Twentieth Century

**15:35 - 15:45 Mohsen Elabbadi** (PhD in Materials Science and Metallurgy)

ElectrON LightON PlasmON ActiON!

**15:45 - 15:55 Dolly Theis** (PhD, Centre for Diet and Activity Research in the MRC Epidemiology Unit)

Is Obesity Policy in England Fit for Purpose? Analysis of Government Strategies and Policies, 1992–2020

**15:55 - 16:05 Matthew H. Choy** (Clinical Medicine (MB BChir)

Frailty specific factors predict long term mortality in patients undergoing lower limb revascularisation (LLR)

**16:05 - 16:15 Luca Donini** (PhD in Physics)

Quantum Simulation with Ultracold Atoms in a Kagome Optical Lattice

**16:15 - 16:25 Phillip Craik** (PhD in German)

Aristotle’s Influence on Nietzsche’s Early Politics

2nd Oral Presentation Session Abstracts

**Oral Presentation 7 (2nd Oral Presentation Session) - 15:15 - 15:25**

**Exploring the transformative potential of urban agriculture within architectural theory and practice**

***Author(s):*** ***Michael Collins***

Supervisor(s): Felipe Hernandez, Course: PhD in Architecture, Year of Matriculation / Joining MCR: 2017

This research was initiated in 2017 and focused on the transformative potential of urban agriculture, in particular, how this is conceptualised in theory and practice within the disciplines of architecture and urban design.

The last two decades have witnessed a proliferation of interest in the concept of self-sufficient urbanism and architecture, in particular, how buildings and cities can simultaneously become sites for agriculture and food production. This concept appears to have evolved quickly from well publicised but highly speculative proposals within student work and competition entries to actual urban strategies that are being adopted and realised with increasing enthusiasm by mainstream practice and urban policy across the globe. Out-with design disciplines, this concept has been implemented through engineering innovations by commercial agribusiness within cities such as New York and London.

The research identified that this is a preoccupation that has re-emerged and languished at key points within architectural history for centuries in response to systemic shocks and moments of collective uncertainty, as a positivist solution to scarcity but also as a form of socio-political critique.

The relationship between urban areas and food production is critical in a post-Covid and low carbon world through the planning of the built environment. This research argues that a critical theory of urban agriculture within architecture and urban planning remains in its infancy.

This study aims to challenge existing frameworks that are used to define food growing practices within urban design and architecture and explore how a closer engagement between theory and practice can be cultivated.

This study aims to unpack the complex entanglement of utopian, Marxist and free-market tendencies within theory throughout history. To enrich this critique, Michael is undertaking a contemporary study of productive capacity and knowledge production within London’s metropolitan agriculture and food networks as a means to suggest how new forms of architectural practice and research could emerge within this field. Whilst this research is in progress, it has revealed a multiplicity of urban forms of ‘agriculture’ that exist and is overlooked by a narrow policy focus upon urban agriculture.

**Oral Presentation 8 (2nd Oral Presentation Session) - 15:25 - 15:35**

**Unearthing the ecoGothic in Literary Plant Life of the Early Twentieth Century**

***Author(s):*** ***Amy Ainsworth***

Supervisor(s): Dr Charlotte Woodford, Course: PhD in German, Year of Matriculation / Joining MCR: 2019

We do not immediately associate plant life with the Gothic, which more readily calls to mind sparseness and scarcity, not the vibrancy and vitality of plants, yet plants embody a kind of uncanny selfhood, or even personhood: they are living and, as plant science increasingly confirms, intelligent beings, yet in ways which continue to defy cultural understanding. We persist in backgrounding plants and their uncanny lives – they are attractive or useful, sometimes both, but rarely anything more.

Leaning into the absolute otherness of plant life encourages us to challenge this frequent cultural backgrounding of plants. One of the ways in which we can do this is by exploring literary and cultural representations of plant life through the lens of the emerging discipline of the ecoGothic. The ecoGothic urges us to turn our attention to the darkness of nature – to the powerful non-human which exists regardless of human intervention – and so to ‘re-enchant’ nature in a supposedly post-enlightenment era of apparent disenchantment.

Within an ecoGothic framework, this paper will explore two examples of German literary texts featuring animate plant life: Hanns Heinz Ewers’s 1911 novel Alraune (Mandrake) and Gustav Meyrink’s 1905 short story ‘Die Pflanzen des Dr. Cinderella‘ (‘Dr. Cinderella’s Plants’). This study will explore the ways in which dynamic plants are Gothicised in these early twentieth-century texts, how this Gothicising may contribute to the reformulation of the ways in which we understand human/non-human relations, and how it may serve to re-enchant plant life in our cultural imagination.

**Oral Presentation 9 (2nd Oral Presentation Session) - 15:35 - 15:45**

**ElectrON LightON PlasmON ActiON!**

***Author(s):*** ***Mohsen Elabbadi***

Supervisor(s): Dr. Emilie Ringe, Course: PhD in Materials Science and Metallurgy, Year of Matriculation / Joining MCR: 2019

Plasmonic nanoparticles are of interest due to their enhanced light- matter interactions, demonstrating great potential for a range of applications from sustainable sun-driven photochemistry to sensitive biological sensors. These rely on the phenomenon of localised surface plasmon resonances (LSPR); the consequence of the confinement of plasmons (oscillations of free electrons) within a nanoparticle of size equal to or less than the wavelength of incoming light. This can lead to maxima in absorption and scattering of incident light that can be orders of magnitude larger than strongly absorbing dyes.

Understanding nanoparticle synthesis and structure is key towards controlling their properties and implementing their applications. In particular, hybrid or bimetallic nanostructures offer the potential to couple the properties of two or more different metals, expanding their functionalities. This project investigates novel synthetic and characterisation techniques for plasmonic nanoparticles, using electrochemistry for the synthetic control of a bimetallic deposited metal ion and nanoparticle substrate system.

Passing an electric current at the electrode where nanoparticles are leads to metal ions, in this case copper, being reduced on the surface of gold nanoparticles. This project aims to improve synthetic control by correlating the total current with the amount of copper deposited. As the wavelength of the optical resonance depends strongly on the size and shape of the overall nanostructure, measuring the LSPR spectrum response is a promising approach for the evaluation of the effect of modifying electrochemical parameters, as well as facilitating in-situ tracking.

Nanoparticle morphology was imaged using scanning electron microscopy, showing copper deposited on the gold nanoparticles. Current work is aiming to refine the control of electrodeposition to better control the optical properties, while previous work has focused on overcoming issues with copper oxidation and obstructive precipitates.

Principles determined from this proof of concept system will be carried forward for the synthesis of nanoparticles from various metal - ion combinations, in both aqueous and organic media. This will lead onto the synthesis of novel photocatalysts with an ultimate goal of developing more earth-abundant, sustainable and cheaper materials.

**Oral Presentation 10 (2nd Oral Presentation Session) - 15:45 - 15:55**

**Is Obesity Policy in England Fit for Purpose? Analysis of Government Strategies and Policies, 1992–2020**

***Author(s):*** ***Dolly Theis***

Supervisor(s): Martin White, Course: PhD, Centre for Diet and Activity Research in the MRC Epidemiology Unit, Year of Matriculation / Joining MCR: 2017

**Context**: In England, the majority of adults, and more than a quarter of children aged 2 to 15 years live with obesity or excess weight. From 1992 to 2020, even though the government published 14 obesity strategies in England, the prevalence of obesity has not been reduced. We aimed to determine whether such government strategies and policies have been fit for purpose.

**Method:** We undertook a mixed‐methods study, involving a document review and analysis of government strategies either wholly or partially dedicated to tackling obesity in England.

**Findings:** We identified and analyzed 14 government strategies published from 1992 to 2020 containing 689 wide‐ranging policies. Policies were largely proposed in a way that would be unlikely to lead to implementation; the majority were not interventionist and made high demands on individual agency, meaning that they relied on individuals to make behavior changes rather than shaping external influences, and are thus less likely to be effective or to reduce health inequalities.

**Conclusions**: The government obesity strategies' failure to reduce the prevalence of obesity in England for almost 30 years may be due to weaknesses in the policies' design, leading to a lack of effectiveness, but they may also be due to failures of implementation and evaluation. These failures appear to have led to insufficient or no policy learning and governments proposing similar or identical policies repeatedly over many years. Governments should learn from their earlier policy failures. *Paper link:* [*https://onlinelibrary.wiley.com/doi/full/10.1111/1468-0009.12498*](https://onlinelibrary.wiley.com/doi/full/10.1111/1468-0009.12498)

**Oral Presentation 11 (2nd Oral Presentation Session) - 15:55 - 16:05**

**Frailty specific factors predict long term mortality in patients undergoing lower limb revascularisation (LLR)**

***Author(s):*** ***Matthew H. Choy,*** *Asanish Kalyanasundaram, Prasanti A. Kotta, Lukasz Zielinski, Patrick Coughlin*

Supervisor(s): Patrick Coughlin, Course: Clinical Medicine (MB BChir), Year of Matriculation / Joining MCR: Matriculated 2015, joined MCR 2018

The predictive value of assessing frailty in vascular surgery will become an integral part of patient selection. We analysed the value of a speciality specific frailty instrument in determining the outcome of patients undergoing open lower limb surgical revascularisation (OLLSR).

We performed a retrospective review of a consecutive series of patients who underwent OLLSR (01/15 – 12/16). Demographics, indication for treatment and markers of frailty were collected. Frailty was assessed using the previously validated Longer term Addenbrookes Vascular Frailty Score (LAVFS). The primary outcome was long term mortality with a data collection end date of 1/1/20. Multivariate analysis was performed.

261 patients (196 men; median age 68 years) were included with a median follow up of 47 months. 60 patients underwent suprainguinal revascularisation and the indication for intervention was CLTI 142, Claudication 104, popliteal aneurysm 15. In total, 61 patients died during the follow up period.

Anaemia, polypharmacy and the requirement for an emergency admission were significant predictors of mortality (p<0.001). Overall, the LAVFS predicted long term mortality rates (p<0.001).

The LAVFS is a predictor of long-term mortality in patients undergoing OLLSR. The tool shows promise for routine use but will require further prospective evaluation.

**Oral Presentation 12 (2nd Oral Presentation Session) - 16:05 - 16:15**

**Quantum Simulation with Ultracold Atoms in a Kagome Optical Lattice**

***Author(s):*** ***Luca Donini***

Supervisor(s): Dr Ulrich Schneider, Course: PhD in Physics, Year of Matriculation / Joining MCR: 2019

The idea that we might be able to simulate complex processes in nature with quantum computers was first put forth by Richard Feynman in the 1980s. While the goal of building a completely general device capable of simulating any physical system remains elusive, much progress has been made in the construction of specialised quantum simulators that are able to address more specific problems. In this context, ultracold atoms in optical lattices have been used over the last 20 years to reproduce the electronic properties of crystalline solids. This allows to study phenomena such as superconductivity, whose origin is still not completely understood, and to search for new states of matter exhibiting exotic properties. The increased understanding gained through these methods has the potential to lead to significant technological development.

In my talk, I will be presenting the quantum simulator that my group is currently building. It is implemented with ultracold rubidium and potassium atoms in a kagome optical lattice. The corner-sharing triangles that make up the kagome pattern (see figure) are responsible for a host of interesting phenomena. For example, it is possible for a macroscopic number of atoms in the lattice to have exactly the same kinetic energy, which is prohibited in most systems by the Pauli exclusion principle. Additionally, the quantum-mechanical wavefunction of atoms can be localised to a small number of lattice sites thanks to destructive interference. These unusual properties make our system particularly suitable to study situations for which reliable computational models are not available, thus offering the possibility of significant advances in our understanding of interacting quantum systems.



Figure 1. The kagome lattice is formed of three triangular sublattices creating a pattern of corner-sharing triangles. Left: Unit cell and lattice vectors. Right: Localised wavefunction (eigenstate) of the kagome lattice. Delocalisation is prevented by destructive interference of the tunnelling amplitudes.

**Oral Presentation 13 (2nd Oral Presentation Session) - 16:15 - 16:25**

**Aristotle’s Influence on Nietzsche’s Early Politics**

***Author(s):*** ***Phillip Craik***

Supervisor(s): Dr. Martin Ruehl, Course: PhD in German, Year of Matriculation / Joining MCR: 2020

Friedrich Nietzsche’s (1844-1900) politics changed suddenly around the time he first left Germany for Basel. Up to this point, his views had been those typical of his age and social class: he was an ardent German nationalist and a supporter of Bismarck’s programme of unification under Prussian leadership. When he first wrote home about Basel, then a small, quasi-independent city on the Rhine, he wrote of it dismissively, as a place well set up to cure one of republicanism. A year later all of this had changed. It was suddenly Prussia’s growing influence that posed the greatest danger to European culture, and the city-state, against which the modern nation was an ‘absurd crudity’, that now captured his interest. What caused this change — indeed, that such a change took place at all — has gone almost unremarked upon in the literature. Here I suggest a solution is to be found in yet another understudied area: Nietzsche’s extensive engagement with Aristotle’s Politics. A detailed account of these early years is of decided importance to our understanding of Nietzsche’s thought, for the politics he assumed in Basel stayed with him more or less unchanged into his mature period, where they continued to play a foundational role in his theories of culture and the future of mankind.

Exhibition Details

**Jesus MCR Graduate Conference 2021 College Archive Exhibition: Art and architecture in Jesus college: preserving the past and creating the future**

***Curated by Robert Athol, College Archivist***

***Location: Gather.town Lobby***

1. *Elevation of east end of Chapel, 1846*
2. *Green glazed tile, c.1400*
3. *Jesus College, Cambridge - survey and recording of the Chapel nave roof. Report no. 784*
4. *The Chapel, c. 1900. Sepia engraving, signed in pencil by Celia Murray. Published by W. H. Beynon.*
5. *The Hall, c.1900, Sepia engraving, signed in pencil by Celia Murray.*
6. *Joie de Vivre, 1989. Oil on canvas by John Bellany.*
7. *Jonathan James College cook (c.1767 – 1782), pottery and receipt*

**Pippy Photo Album**

***Photography by James Crockford, Dean of Chapel and Welfare tutor***

***Location: Gather.town Lobby***

**Music by Jesus College Choir**

***Ave Maria by Franz Biebl, recorded live during a Jesus College Chapel service from October 2020 and sung beautifully by the Lower Voices of the Chapel Choir.***

***Jesus College Choir and Richard Pinel, Director of Music, Jesus College.***

***Location: Gather.town Lobby***

**The May Vial, A Play**

***Written, filmed and directed by Fred Kelly (Jesus College MCR member matriculation 2019), featuring Abha Calindi and Hannah Charlotte Copley.***

***Location: Gather.town Lobby***

Gather.town Guidance and instructions for Presenters / Judges and Attendees

**About Gather.town:**

You will be able to select a character, search for specific attendees, or just wander around the 2D style space by walking in and out of conversations, just as you would in real life. As you move around the space with your keyboard arrows, the webcam video and microphone audio

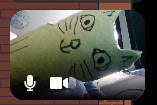
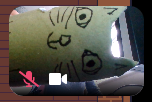
of the other people in the room increases or fades based on your distance to their character, mimicking walking the hallways at an in-person conference.

You are encouraged to visit Gather.Town prior to Saturday if you are a **presenter, chair or judge** so that you are comfortable using and navigating the space during actual sessions.

Gather.Town is ONLY supported by Chrome and Firefox, and may suffer glitches if used on Internet Explorer.

**Enable/disable your audio and video:**

After signing in, you will see yourself in the bottom right corner window. This is where you can enable/disable your audio/video. Please keep in mind if you turn these off others will not be able to communicate with you.

*Video and audio on Audio off, Video on Audio and video off*

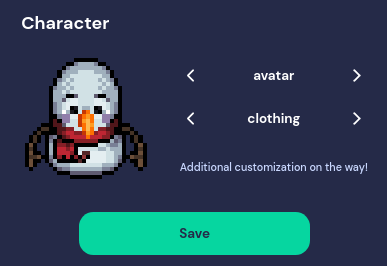
**Change your name:**

Click on your name at this bar at the bottom. Please use your name and surname, so that if needed Mark can let the speaker share their screen (then he will know that you are not the speaker if you share the same forename)



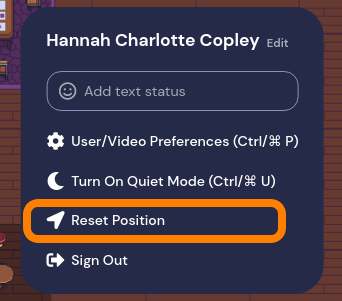
**Change your character:**

Click on the character in the bar above, and you can change the appearance.



**I am lost or can’t get in!**

* If you leave the space and re-enter, you will arrive back in the location you were in before.
* If you can’t get into Gather.town or it isn’t working for you, email Mark Cresswell who is providing tech support all day on: av-technician@jesus.cam.ac.uk
* If you’re in Gather.town and you have any problems and you can access the chat – message the user named “Tech Support (Mark)”.



**I seem to be stuck, and can’t move: try “reset position”:**

If this happens, do the following:

1. Click on your name



1. Choose the option “Reset position”

**Someone is blocking my way and I can’t get through:**

If you press “g” on your keyboard you become a “ghost” and can walk through other people. This may happen if many people congregate at a doorway.

A screenshot of a computer

Description automatically generated with medium confidence

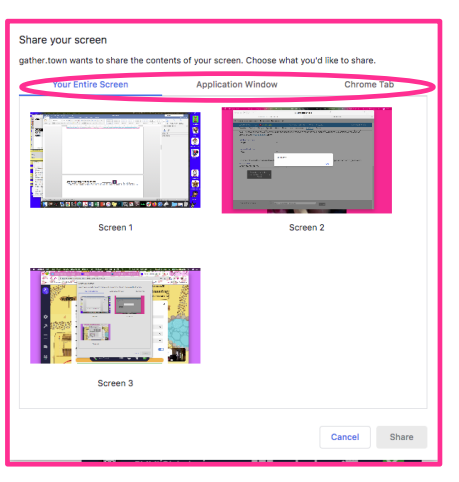
**Map overview:**

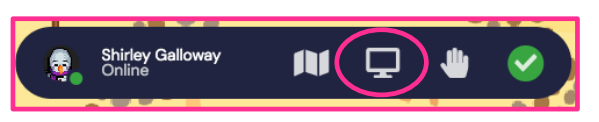
**How to give an Oral Presentation:**

For Oral presentations you will need to share your screen, and you will need everyone in the room to be able to see and hear you. This means you need to be in a “spotlight” position in the Main Stage.

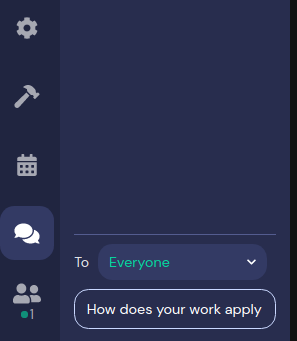
* 1. How to get into a spotlight position:

The orange squares and circles are all “Spotlight” positions. If you are presenting, walk onto the stage via the stairs and stand on any of the orange squares or circles - then everyone in the whole room can hear you.

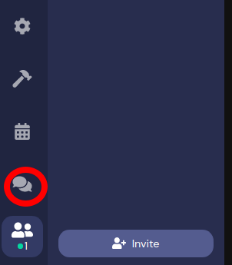
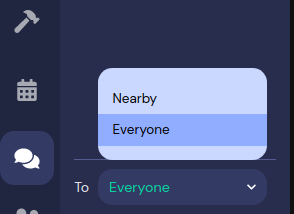
1. How to present your oral presentation

You will have the option to select/share your entire screen, an application window (i.e. PowerPoint), or a tab on Chrome. We recommend you try this on the platform ahead of your actual presentation.

Choose the circled option above

**How to ask a question during an oral presentation session:**

Find the chat with this icon (red circle) bottom left

Change the question so it is visible to everyone and send your question. The chair will choose one question from the audience.

After the talk, if your question didn’t get answered please find the speaker and ask your question in person!

**How to chair a presentation session:**

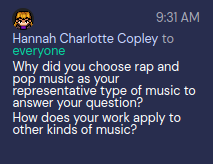
You need to be standing on a “spotlight” position which means everyone in the room can hear and see you.

Walk until you are on any of the orange squares or circles and you are on a spotlight.

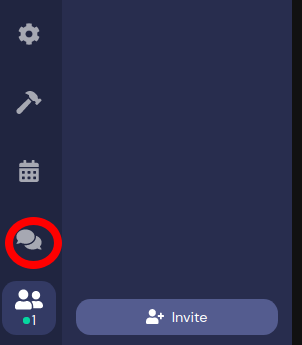
Introduce the speaker by name and the title of their talk.

Timing is then as follows:

* Time main presentation to take 7 minutes, then give a one minute warning
* At 8 minutes ask the speaker to finish their presentation
* Look in the chat and choose one question to ask



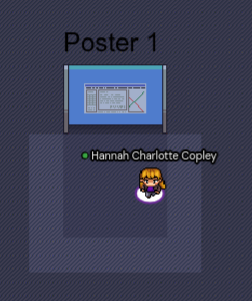
Find the chat with this icon bottom left (red circle)



Choose one question only from the chat to ask to the speaker. Encourage other questions to be asked during the breaks and during poster presentation session.

**How to give your poster presentation:**

Find your poster and stand within the square near it. It is a “private space” i.e. people can only see and hear you if they also stand in this space.

Between 14:30 and 15:00 one or two judges will attend your poster and ask to hear a 2 minute presentation. This should be a two minute talk which you give to any visitor who asks, which provides enough background for a non expert to understand the purpose and conclusions of your research. The judge will then ask one or more follow up questions about your research. Your presentation will be judged on the poster itself, the two minute presentation, and the follow up questions. If the judge arrives whilst you are speaking to someone else please give the judge priority over the other discussion and give your 2 minute presentation to the judge.

To find out which poster number you are, see the section of the guide above or see your email.

Stand within this square in front of your poster.

**How to judge a poster presentation:**

Find your three or four posters during the period 14:30-15:00 and attend each in turn.

Judge the posters with three marks: the quality of the poster, the quality of the two minute presentation, and the follow up questions. See your email for who to send the marks to for collating, and for what order to attend the posters (so that judges are less likely to overlap).

If there are many other people attending the poster when you are due to judge it then please ask them to pause their discussion, or ask the speaker to restart their presentation if they have already begun so the judging process can be completed on time.

**How to do the welcome at the start or the prize giving ceremony at the end:**

Applicable to: Master, Richard Thomas, Tim Wilkinson, Michael Edwards and Sybil Stacpoole



Navigate to the Main stage from the Lobby



In the Main stage room, stand on any of the orange circles or orange squares which are on the main stage - this ensures everyone in the room can see and hear you.

Prizes!

Prizes to be announced at 16:45-17:00

*( all are available as an equivalent item if winner does not want this item, or if they are non Cambridge based or non UK based)*

1st Oral Presentation Prize:

Ultimate Ears WONDERBOOM Bluetooth Waterproof Portable Speaker, Subzero Blue



2nd Oral Presentation Prize:

Jesus College Crested Scarf from Ryders and Amies and Jesus College Mug

3rd Oral Presentation Prize:

Macarons and Chelsea Buns, delivered from Fitzbillies and Jesus College Mug

1st Poster Presentation Prize:

Jesus College Crested Scarf from Ryders and Amies and tub of ice cream (large) for home delivery from Jack’s Gelato



2nd Poster Presentation Prize:

Fitzbillies Favourites delivered - A box of 4 of our ultra-sticky Chelsea buns, a box of 6 Macarons and a packet of Butter Shortbread.

