

Queen Square 20th Annual Symposium



Friday 31st May 2019
UCL Institute of Education
Jeffery Hall



Queen Square Student Committee

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Acknowledgements

We would like to sincerely thank everyone for attending the 20th Annual Queen Square Symposium. Thank you especially for presenting your research, sharing your ideas and making this event an incredible opportunity.

Thank you to our keynote speakers Prof **Gill Bates**, Prof **Michael Hausser** and Prof **Mary Rielly**.

Thank you to our poster judges Dr **Caroline Selai**, Dr **Saiful Islam** and Dr **Adam Liston**.

Thank you to associate editor **Aisha Bradshaw** and chief editor **Stavroula Kousta**.

Thank you to the IoN staff for their help in organising the symposium and other events throughout the year.

Thank you to our sponsors for their support:



See you all next year!

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Scott-Solache James	Characterising the electrophysiological properties of the dysplastic region in a mouse model of Focal Cortical Dysplasia
Skumlien Martine	Cannabis use and response inhibition: The role of adolescent onset and dependence symptoms
Sporrer Juliana	Role of mood on confidence in decision-making
Tal Roy	Counterfactual Reasoning in Perceptual Decision-Making
Todd Emily	Hypothalamic volume differences in MAPT-related frontotemporal dementia
Wolffe Sarah	Memory self-relevance in PTSD
Yan Yijia	A two-stage model of landmark processing in retrosplenial cortex
Ye Tian	Spontaneous Visuospatial Perspective Selection in Adults
Yu Nicole	Title: The role of episodic memory in compensation for those with mentalizing difficulties



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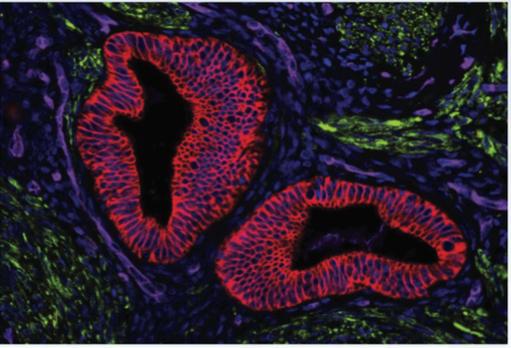
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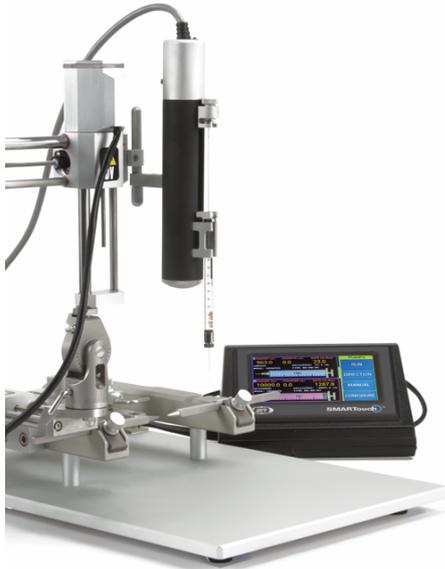


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Crum James	Recovering stimulus designs from the real world: An analysis of prefrontal functional event onsets
de Montpellier Emilie	Disrupted associative binding and memory coherence for negative events
Ekert Justyna	Mapping language function in patients with low grade gliomas
Fei Shang Sophie	How fast should one go? Opportunity cost sensitivity determines free operant action initiation latency
Garud Sankalp	The effect of momentary subjective well-being on choice behaviour
Hashem Leen	The Visual System and Multiple Sclerosis: Decoding Clinical Trajectories from Clinically-Isolated Syndromes
James Hill	Activity-dependent release of the neuronal trans-synaptic protein LGI1 The effects of developmental trauma and stress on reward processing: A systematic review.
Jiang Jessica	Perception of Degraded Speech in Alzheimer's Disease and Primary Progressive Aphasia
Lam Joseph	Apathy, the long misunderstood neuropsychiatric symptom
Leon-Rojas Jose	The role of Preoperative Diffusion Tensor Imaging in predicting and improving functional outcome for paediatric patients undergoing epilepsy surgery: A Systematic Review
Leow Karen	Investigation of working memory as a compensation strategy in ASD
Liu Haoyun	Spontaneous theory of mind and social context
Maniquet Tim	Can motor control benefit from perceptual training?
Menelaou Georgios	An investigation of the profile of layer-specific activations in the primary visual cortex during perceptual expectations - a 7T fMRI study
Naessens Michelle	Language Effects on Verbal Fluency Test Scores
Niemeyer Addison	Novel Approaches to Investigate the Neural Correlates of Laughter
Odi Tuamoru	Probing the activity-dependent dynamics of astrocytic interaction in tripartite synapses using super-resolution microscopy
Paulison Emily	The effects of vagus nerve stimulation on compassionate mind training and threat processing
Peakman Georgia	The neuroanatomical correlates of semantic memory impairments in primary progressive aphasia (PPA) as assessed by modified versions of the Camel and Cactus Test and the Kissing and Dancing Test
Piazza Giulia	Maladaptive memories in binge eating disorder
Piera Pi-Sunyer Blanca	How prosocial influence varies depending on age, source and direction of the influence
Ponciano Ana	Natural history of reversible cerebral vasoconstriction syndrome presenting with convexity subarachnoid haemorrhage
Sabahat Iqbal	Understanding the Brain Tumour Microenvironment
Sajid Noor	Lesions are not binary: the case for being continuous



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Lovejoy Christopher	iPSC-derived engineered cerebral organoids (EnCORs) as in vitro models of tauopathy
Moreira Fransisco	Using CRISPRa to upregulate the multi-subunit potassium channel Kv7 as potential gene therapy for epilepsy
O'Callaghan Benjamin	Exploring the Impact of mtDNA Mutations on the Metabolic and Epigenetic Profiles of hIPSC-Derived Myogenic Cells
Osman Asjad	Ethnic variability in Parkinson's disease clinical phenomenology: A comparative study of three Parkinson's cohorts from the Europe, Asia and Africa
Ou Zhen-Yi Andy	Brain-derived neurotrophic factor in cerebrospinal fluid as a biomarker for Huntington's disease
Paraneetharan Varshini	Non-invasive brain stimulation to probe cortical and subcortical inhibitory pathways during movement preparation
Riggall Laura	Development of Translational Imaging Biomarkers of Disease Progression in a Mouse Model of Huntington's Disease
Roisin Sullivan	Novel loss-of-function mutation in ACBD5 found in family with ataxia
Sarajarvi Verna	Mitochondrial dysfunction as a common pathology in CMT
Wai Yan Yau	Intronic pentanucleotide TTTCA repeat insertions do not cause familial and sporadic cortical myoclonic tremor with epilepsy in the UK
Zhang David	Incomplete annotation of OMIM genes is likely to be limiting the diagnostic yield and understanding of neurogenetic disorders.

Group B: 15h30 – 16h10

Cognitive, Behavioural & Imaging Neuroscience studies

Aforlabi-Logoh Innocent	Planning Of Epilepsy Surgery: A Review Of Non-Invasive Functional Brain Imaging Techniques
Antoine Salomé	Visual detection of interoceptive information
Carels Annefloor	The role of the corpus callosum in memory, cognitive and movement networks; a systematic review of lesioning and resection in humans
Cornell Isabel	Resting State fMRI: Does it have a role in Glioma and Epilepsy pre-surgical language mapping?

Programme of the Day

<i>Time</i>	<i>Event</i>
09:00 – 09:30	Registration & Coffee
09:30 – 09:45	Welcome talk by the QSSC
09:45 – 10:30	Guest Speaker: Professor Gill Bates <i>“Insights into the pathogenesis of Huntington’s disease”</i>
10:30 – 11:10	Rapid-fire Poster Presentations
11:10 – 11:20	Platinum Sponsors Presentation: Proteintech
11:20 – 12:00	Poster Session Group A
12:00 – 12:55	Lunch Break (provided)
12:55 – 13:40	Guest Speaker: Professor Michael Häusser <i>“All-optical closed-loop manipulations of neural circuits in vivo”</i>
13:40 – 14:30	Workshop with Nature Editors Dr. Kousta & Dr. Bradshaw <i>“A career in scientific communication and tips for the publication process”</i>
14:30 – 15:10	Rapid-fire Poster Presentations
15:10 – 15:20	Coffee Break
15:30 – 16:10	Poster Session Group B
16:10 – 16:55	Guest speaker: Professor Mary Reilly <i>“Inherited neurological disease: treatment approaches”</i>
17:00 – 17:15	Prizes announced
17:15 – 19:00	Drinks Reception

Poster sessions

Session	Group	Time
First session	Group A	11.20 - 12.00
Second session	Group B	15.30 - 16.10

Group A: 11h20 – 12h00

Molecular and Cellular neuroscience & Clinical Neuroscience studies

Abatecola Federico	The effects of neurotrophic factors and axon physiology on axonal transport
Anderle Silvia	Does an extra copy of genes in the Dp3Tyb model of Down syndrome modify amyloid pathology?
Binti Affandi Aida Helena	Impaired Cell Surface Expression of a Gamma-Aminobutyric Acid A (GABA A) Receptor Epilepsy Mutant
Brockman Elizabeth	Activity-dependent release of the neuronal trans-synaptic protein LGI1
Cannavo Claudia	Understanding APP processing in a cellular model of Down syndrome
Casey Jackie	Progranulin Haploinsufficiency and Mitochondrial function
Chen Zhongbo	Human-lineage-specific genomic elements are present at high density within genes implicated in neurodegenerative diseases and are enriched for heritability of intelligence
Derrien Diane	Does retinal thinning predict the development of dementia in Parkinson's Disease?
El-Bacha Nina	The role of synaptotagmin1 oligomerisation on synaptic vesicles dynamics at central terminals.
Ghaffari-Rafi Arash	Motor neuron adaptations to overload of the EDL muscle in rats
Gonzalez Knoell Mariel	NfL as a biomarker in MSA
Harley Jasmine	Modelling stress granule responses in motor neurons using a human stem cell model of ALS.
Jagla Alexandra	Strategies for Navigation of Virtual Reality Spatial Environments Employed by Non-Human Primates
Joubert Julie	The Characterization of inward rectifying potassium channel expression in human motor cortex neurons.

Guest Speakers

Professor Gill Bates

Queen Square Institute of Neurology



Prof Bates obtained a first class BSc in Genetics from Sheffield University in 1979 and an MSc in Biomolecular Organisation from Birkbeck College in 1984. Her interest in human genetics, and the possibilities of identifying the mutations causing genetic diseases, led her to Bob Williamson's Department at St. Mary's Hospital Medical School as a research assistant in 1983, where she then carried out her PhD on the molecular genetics of cystic fibrosis.

In 1987, she moved to Hans Lehrach's laboratory at the Imperial Cancer Research Fund, as a postdoctoral fellow, to work on Huntington's disease (HD). The Lehrach lab was working toward the identification of the HD mutation as a part of an international collaborative research group under the umbrella of the Hereditary Disease Foundation, led by Nancy Wexler.

Bates led a small group that performed the physical mapping and large scale cloning for this combined endeavour, which led, in 1993, to the identification of the HD mutation as a CAG repeat expansion. In 1994, Bates moved to the Department of Medical and Molecular Genetics at the United Medical and Dental Schools as a Senior Lecturer to establish her independent research group investigating the molecular basis of Huntington's disease. Her lab published the first mouse models of HD in 1996, which, with Stephen Davies, led to the identification of HTT inclusions in 1997, and in 1998, the first indication of transcriptional dysregulation in HD by Jang Ho Cha. Bates became Professor of Neurogenetics at King's College London in 1998 and Head of the Division of Genetics and Molecular Medicine at KCL in 2011. In 2016, she moved her lab to the Institute of Neurology at University College London to establish the Huntington's Disease Centre with Professor Sarah Tabrizi. She is Professor of Molecular Neuroscience at the Institute of Neurology and the UCL Dementia Research Institute, Co-Director of the Huntington's Disease Centre and Vice-Dean (Research) for the Faculty of Brain Sciences. She was elected to the Academy of Medical Sciences in 1999, the European Molecular Biology Organisation in 2002 and the Royal Society in 2007.

Next on the Programme

Workshop with Nature Human Behaviour Editors

For the first year, we have invited editors from the Nature Human Behaviour journal to lead a workshop and provide insight into a career in scientific publishing and effective communication of research, along with providing some guidelines aimed at young researchers on how to navigate the publication process.

Rapid-fire Poster Presentations

These consist of short and snappy 10-minute presentations, during which the essential content of a project is outlined to encourage further discussion in the poster sessions.

Poster Sessions

During this period, participants (Group A in the morning and Group B in the afternoon) are encouraged to stand by their posters, in order to explain their research and answer any questions from the audience.

Poster Prizes and Certificates

The top two poster submissions will be selected for each group by our panel of judges. Best poster and runner up prizes will be announced at the end of the day, with a monetary reward of £70 and £40, respectively. All participants with poster submissions will receive a certificate of attendance (please collect it from a member of the QSSC as you leave).

Professor Michael Häusser

Wolfson Centre for Biomedical Research



A Fellow of the Royal Society, as well as a Principal Research Fellow of the Wellcome Trust and member of Academia Europaea, Prof. Häusser's main research interest is the cellular basis of neural computation in the brain, with a special focus on the role of dendrites. His group has helped pioneer optical and electrophysiological methods for probing the function of neural circuits in the intact brain. After receiving his PhD from Oxford University, Prof. Häusser joined Nobel Laureate Bert Sakmann at the Max-Planck-Institute for Medical Research in Heidelberg, Germany, and Philippe Ascher at the Ecole Normale Supérieure in Paris, France. He established his own laboratory at UCL in 1997 and became Professor of Neuroscience in 2001. Prof. Häusser is investigating how dendrites, the receiving elements of neurons, can act as computational devices, and how they are engaged within neural circuits during behaviour. To address this fundamental question, he and his

team will exploit a range of innovative imaging, recording, and optogenetic technologies that will allow them to both record and manipulate dendrites and neural circuits during behaviour. This approach will provide invaluable insights into how single neurons act as computing devices, and how the computations that drive behaviour are implemented in single cells and neural circuits.

Lecture title: “All-optical closed-loop manipulations of neural circuits in vivo”

Understanding the causal relationship between activity patterns in neural circuits and behaviour will require the ability to perform rapid and targeted interventions in ongoing neuronal activity. I will describe a novel closed-loop all-optical strategy for dynamically controlling neuronal activity patterns in awake mice. This involves rapid tailoring and delivery of two-photon optogenetic stimulation based on readout of activity using simultaneous two-photon imaging of the same neural population. This closed-loop feedback control can be used to clamp spike rates at pre-defined levels, boost weak sensory-evoked responses, and activate network ensembles based on detected activity. By optically 'yoking together' neighbouring neurons, it can also be used to induce long-term changes in network dynamics. This approach thus allows the rate and timing of activity patterns in neural circuits to be flexibly manipulated 'on the fly' during behaviour.

Professor Mary Reilly

Queen Square Institute of Neurology

Professor Reilly originally came to Queen Square to undertake research with Professor Anita Harding in 1991. She has been a consultant Neurologist at Queen Square since 1998 and was promoted to Professor of Clinical Neurology at UCL in 2010. She is head of the Division of Clinical Neurology and Co-Director of the MRC Centre for Neuromuscular Diseases in the Department of Molecular Neurosciences at UCL Institute of Neurology. She is internationally recognised for her expertise in research and clinical practice related to peripheral nerve diseases. From 2017-2019, Professor Reilly was the first ever female President of the Association of British Neurologists.



Professor Reilly has had a longstanding research interest in the inherited neuropathies with an emphasis on translational research and clinical management. A major part of her current programme focuses on gene identification, functional analysis of identified genes and studies into the pathogenesis. Her more clinically focused translational research focuses on developing new outcomes measures and new disease MRI biomarkers for disease progression, large scale natural history studies, and conducting clinical trials in inherited neuropathies.