**MEG UK 2019**

Cardiff

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# Full programme

Last updated: 16-04-2019

## Workshop: Machine learning and multivariate methods in M/EEG applications Monday, April 15th

**9:00** **Registration**

**Session: Introduction to machine learning and multivariate analyses**

**10:00** Karim Jerbi (University of Montreal): *Data-mining the human brain: Basic principles of machine learning and data-driven neuroscience*

**10:45** **Coffee break**

**11:15** Alexandra Woolgar (Cambridge University): *Introduction to multivariate pattern analysis for functional neuroimaging*

**12:00** Diego Vidaurre (Oxford University): *The use of encoding and decoding models to interpret brain data.*

**12:45** **Lunch**

**13:30** **Keynote**: Radoslaw Cichy (Freie Universität Berlin): *Dynamics of visual cognition: A spatio-temporally resolved and algorithmically explicit account*

**Session: Machine learning in M/EEG applications**

**14:30** Nitzan Shahar (University College London): *Effects of working memory load and reaction-times on the quality of action representations in sensory-motor cortex*

**14:50** Lydia Barnes (Cambridge University): *Decoding rules and relevant features across task phases*

**15:10** Britta Westner (Aarhus University): *Next stop source-space: the interpretability of results in MEG decoding*

**15:30** **Coffee break**

**16:00** Holly Rossiter (Cardiff University): *Exploring cortical correlates of hand kinematics using an RSA based approach with fMRI and MEG data*

**16:20** Freek van Ede (Oxford University): *Tracking attentional selection in dynamic settings using multivariate human neurophysiology*

**16:40** Golnoush Alamian (University of Montreal): *Characterizing temporal neural dysconnectivity in Schizophrenia based on resting-state MEG signal: a machine-learning approach*

**17:00** Daniel Baker (University of York): *Internal noise in contrast discrimination propagates forwards from early visual cortex*

**17:20** Wrap-up

**17:30** **Drinks reception** at CUBRIC (Maindy Road), ending at 19:00

# Conference Day 1 Tuesday, April 16th

**9:45** **Registration, coffee & poster set-up**

**10:15** **Welcome**

## Session: Attention

**10:30** Marlou Perquin (Cardiff University): *MEG correlates of behavioural variability and mind wandering*

**10:45** Lucrezia Liuzzi (University of Nottingham): *Beta oscillations reflect behaviourally relevant long-range GABAergic inhibition*

**11:00** Tom Marshall (University of Oxford): *Stable and competitive dynamics in attention allocation*

**11:15** Laura Marzetti (University of Chieti-Pescara): *Alpha and alpha-beta phase synchronization mediate the recruitment of the visuospatial attention network through the Superior Longitudinal Fasciculus*

**11:30** **Keynote**: Charlotte Stagg (University of Oxford): *Oscillations and Inhibition: towards an understanding of the neurophysiology of motor learning*

**12:30** **Lunch and Poster presentations**

## Session: Source Methods

**13:30** Olaf Hauk (University of Cambridge): *Resolution analysis of source estimation methods: the linear toolkit*

**13:45** Yulia Nurislamova (National Research University Higher School of Economics, Moscow): *Reci-PSIICOS beamformer immune to correlated sources and forward model inaccuracies*

**14:00** Aleksandra Kuznetsova (National Research University Higher School of Economics, Moscow): *Traveling wave model for SOZ localization in MEG data*

**14:15** Sophie Schrader (University of Münster): *Using combined analysis of EEG/MEG to improve skull conductivity calibration: Sphere model studies and application in epilepsy*

**14:30** Caroline Witton (Aston University): *Beamformers and epilepsy*

**14:45** Caroline Witton (Aston University) & Amit Jaisal (MEGIN): *Beamforming with Neuromag MEG data. How to make it work?*

## Session: Optically-pumped magnetometers

**15:00** Ryan Hill (University of Nottingham): *Developments in OPM-MEG from Nottingham*

**15:15** Stephanie Mellor (University College London): *Increasing the range of motion in OPM-MEG*

**15:30** **Coffee break**

**16:00** Sponsor presentations:

- Yoshihito Shigihara (RICOH): *Three keys to push clinical MEG forward*
- Nick Peatfield (CTF): *TBC*
- York Instruments/MEGIN: *TBC*

**16:45** Poster pitches – see list below

**18:00** **Drinks and Poster presentations**

**19:00** **Buffet** at Royal Welsh College of Music & Drama

# Conference Day 2 Wednesday, April 17th

**9:30** **Coffee & Business Meeting**

## Session: Advanced analysis methods

**10:00** Philipe Schyns (University of Glasgow): *Dynamic construction of reduced representations in the brain for perceptual decision behavior*

**10:15** Hyojin Park (University of Birmingham): *Multivariate information theory analysis reveals spatiotemporal properties of audiovisual speech integration*

**10:30** Cameron Higgins (University of Oxford): *Spontaneous replay dynamics revealed by temporally unconstrained classification models*

**10:45** Jan Hirschmann (Heinrich Heine University, Düsseldorf): *Spontaneous network activity <35 Hz accounts for variability in stimulus-induced gamma responses*

**11:00** **Keynote**: Catherine Tallon-Baudry (École Normale Supérieure, Paris): *Brain, Viscera and First-Person Perspective*

**12:00** **Lunch and Poster presentations**

## Session: Connectivity in health and disease

**13:00** Marcus Siems (University of Tübingen): *Dissociated cortical phase- and amplitude-coupling patterns in the human brain*

**13:15** Satu Palva (Universty of Glasgow): *Resting-state cross-frequency networks*

**13:30** Dominik Krzemiński (Cardiff University): *Energy landscapes of spontaneous brain activity of juvenile myoclonic epilepsy patients*

**13:45** Su Yang (Ulster University): *Exploring the regions of interest for mild cognitive impairment subjects: An analysis with functional connectivity approach*

**14:00** Michael Hall (Aston University): *Resting state properties and network disruption in patients with chronic post-concussion syndrome following a mild traumatic brain injury*

## Session: Psychiatric disorders

**14:15** Lauren Gascoyne (University of Nottingham): *Changes in the cortical motor response in recent-onset and established schizophrenia: results from the SPRING study*

**14:30** Tineke Grent-'t-Jong (University of Glasgow): *Gamma-band oscillations and emerging psychosis*

**14:45** Daniel Bush (University College London): *Impaired theta phase-coupling between hippocampus and medial prefrontal cortex in schizophrenia*

**15:00** **Coffee break**

## Session: Neurological disorders

**15:30** Robert Seymour (Aston University): *Atypical contextual integration in autism*

**15:45** Girijesh Prasad (Ulster University): *Integrating a multi-modal brain-computer interface and hand exoskeleton for personalized post-stroke hand motion recovery*

**16:00** Nahid Zokeai (University of Oxford): *Impaired cortico-muscular beta coherence in patients with Parkinson's disease*

**16:15** Natalie Adams (University of Cambridge): *Better biophysical models of degenerative diseases and their treatment: GABAergic restoration in frontotemporal dementia*

**16:30** Wrap-up, ending at 17:00

## Poster pitches

16:45-18:00, Tuesday, April 16th

1. *Does tDCS during an anti-saccade task modulate subsequent resting state functional connectivity?* – Abdulrahman Mohammad Shalabi (University of Nottingham)
2. *Modelling state switching behaviour in MEG with probabilistic recurrent neural network* – Alexander Skates (University of Oxford)
3. *Probing cortical excitability using rapid frequency* tagging – Alexander Zhigalov (University of Birmingham)
4. *Exploiting corticomuscular coupling for enhanced brain robot interface for hand rehabilitation and recovery monitoring* – Anirban Chowdhury (Ulster University)
5. *Brain network dynamics and functional connectivity in a community-based population of 'cognitively frail' older adults and patients with Mild Cognitive Impairment or Alzheimer's disease - a MEG resting-state study* – David Nesbitt (University of Cambridge)
6. *Neural signatures of musical surprise in musicians and nonmusicians as revealed by a computational model of auditory expectation* – David Ricardo Quiroga Martinez (Aarhus University)
7. *Capturing MEG spectral dynamics with non-uniform biophysical networks* – Jonathan Hadida (University of Oxford)
8. *Investigating the relationship between cortical myelination and oscillatory dynamics in vivo* – Laura Bloomfield (Cardiff University)
9. *GABAergic modulation of cortical oscillations underlying action control in health and degenerative disease* – Laura Hughes (University of Cambridge)
10. *How do we integrate evidence over different timescales?* – Maria Ruesseler (University of Oxford)
11. *Investigating the dissociability of two overlapping networks using individual differences and multimodal imaging techniques* – Marie-Lucie Read (Cardiff University)
12. *The influence of confidence on post-decision evidence processing* – Max Rollwage (University College London)
13. *Representation of the dynamic elements of expressive facial motion* – Nicola van Rijsbergen (University of Glasgow)
14. **Withdrawn**
15. *A Bayesian approach to assessing spatial resolution in wearable magnetometer arrays* – Tim Tierney (University College London)
16. *Multivariate phase slope index as a tool for disclosing large-scale directed functional connections in MEG* – Vittorio Pizzella (University of Chieti-Pescara)
17. *On multi-scale processing in the auditory system* – Xiangbin Teng (Max Planck Institute for Empirical Aesthetics, Frankfurt)
18. *Measuring MEG functional connectivity using coincident bursts in transient beta oscillations* – Zelekha Abid Seedat (University of Nottingham)

# Poster presentations

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| **P01** | Abdulrhman M. M. Shalabi | *Does tDCS during an anti-saccade task modulate subsequent resting state functional connectivity?* |
| **P02** | Ahmet Levent Kandemir | *Comparison of DBS Artefact Rejection Methods for MEG Recordings* |
| **P03** | Alain Desire Bigirimana | *Emotion-Inducing Imagery based BCI: a M/EEG study* |
| **P04** | Alessandro Tomassini | *Capturing the evolution of decisions from uncertain visual images to uncertain actions* |
| **P05** | Alexander Skates | *Modelling state switching behaviour in MEG with probabilistic recurrent neural networks* |
| **P06** | Alexander Zhigalov | *Probing cortical excitability using rapid frequency tagging* |
| **P07** | Alice Waitt | *Is inhibitory control during the RECOGNeyes antisaccade task associated with increased alpha and beta power in frontal cortical regions?* |
| **P08** | Ana Pesquita | *The two-body problem: Alpha power decreases over the right temporal cortex during the perception of social actions (preliminary observations).* |
| **P09** | Andrew Quinn | *Exploring oscillatory waveform shape with Empirical Mode Decomposition.* |
| **P10** | Anirban Chowdhury | *Exploiting Corticomuscular coupling for Enhanced Brain Robot Interface for Hand Rehabilitation and Recovery Monitoring* |
| **P11** | Antonio Criscuolo | *Neural dynamics underlying speech preparation and production in people who stutter* |
| **P12** | Benjamin A. E. Hunt | *Large cohort analysis of electrophysiological development in ASD* |
| **P13** | Carsten Wolters | *Optimized multi-electrode tDCS targeting of human somatosensory network* |
| **P14** | Catharina Zich | *Hidden Markov Modelling reveals relationship between MEG and TMS measures of GABA* |
| **P15** | Cliona L Kelly | *Embodied perspective transformations: Comparing head- vs. body-turn congruency using mobile EEG in an immersive VR task.* |
| **P16** | Colette Clare Milbourn | *Can Simultaneous MEG and EEG Determine Resting State Networks using Functional Connectivity?* |
| **P17** | Daisie Pakenham | *Effects of inter-stimulus interval on post-movement beta rebound: consequences for baseline measures* |
| **P18** | David A. Nesbitt | *Brain network dynamics and functional connectivity in a community based population of 'cognitively frail' older adults and patients with Mild Cognitive Impairment or Alzheimer's disease - a MEG resting-state study* |
| **P19** | David R. Quiroga Martinez | *Neural signatures of musical surprise in musicians and nonmusicians as revealed by a computational model of auditory expectation* |
| **P20** | Diana Dima | *MEG correlates of genetic risk for neurodevelopmental disorders* |
| **P21** | Ece Kocagoncu | *Disentangling Alzheimer's disease and cognitive frailty: A paired associates oddball task based MEG* |
| **P22** | Elena Boto | *Wearable functional neuroimaging: combining EEG with OPM-MEG* |
| **P23** | Emily Lambe | *The Effect of Schizotypy onMEG Resting State Connectivity* |
| **P24** | Esin Karahan | *Coupled Source Localization for EEG and ECoG* |
| **P25** | Frank Neugebauer | *Beamforming in Epilepsy with combined MEG &EEG* |

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| **P26** | Gavin Perry | *Gamma oscillations are sensitive to the orientation bandwidth of visual stimuli* |
| **P27** | Geoffrey Brookshire | *Investigating rhythmic attentional sampling using rapid frequency-tagging in MEG* |
| **P28** | George O'Neil | *Finding dynamic group-level differences task-induced functional networks* |
| **P29** | Holly Rossiter | *Oscillatory dynamics during ischemic pain* |
| **P30** | Hongfang Wang | *Human brain network analysis using Granger causality and MEG data from individuals with obsessive compulsive checking behaviour* |
| **P31** | Jacopo Barone | *High hypnotic suggestibility is characterized by reduced functional connectivity in frontal networks (TUESDAY ONLY)* |
| **P32** | James Leggett | *The challenges of mobile, wearable MEG* |
| **P33** | Jen Chesters | *Investigating differences in speech processing in adults who stutter* |
| **P34** | Jian Zhang | *Autocorrelation-Based Source Localisation* |
| **P35** | Jiayu Zhan | *Representation of Information in right Fusiform Gryus for Perceptual Decision* |
| **P36** | Jonathan Hadida | *Capturing MEG spectral dynamics with non-uniform biophysical networks* |
| **P37** | Katarzyna Jaworska | *Spatiotemporal dynamics of visual information integration* |
| **P38** | Keyvan Mahjoory | *The frequency gradient of human resting-state brain oscillations follows cortical hierarchies* |
| **P39** | Laura Bloomfield | *Investigating the Relationship Between Cortical Myelination and Oscillatory Dynamics In Vivo* |
| **P40** | Laura Hughes | *GABAergic modulation of cortical oscillations underlying action control in health and degenerative disease.* |
| **P41** | Lauren Gascoyne | *Does transcranial direct current stimulation affect cortical oscillations during eye movement control?* |
| **P42** | Lauren Z. Atkinson | *Resting state oscillatory brain activity and networks underlying emotion and cognition in mood instability* |
| **P43** | Maria Ruesseler | *How do we integrate evidence over different timescales?* |
| **P44** | Marie-Lucie Read | *Investigating the dissociability of two overlapping networks using individual differences and multimodal imaging techniques.* |
| **P45** | Max Rollwage | *The influence of confidence on post-decision evidence processing* |
| **P46** | Megan Godfrey | *Using neural variability to measure functional connectivity in resting state MEG* |
| **P47** | Miguel Navarrete | *What is it to be out of target? The phase-dependent response to unbalanced jitter of closed-loop stimulation during sleep* |
| **P48** | Naomi du Bois | *Differences in the dynamic-systems structure of auditory cognition as a function of musical training* |
| **P49** | Natasha Alicia Jones | *Using MEG to assess the relationship between autonomic measures and brain oscillations during an inhibitory control task* |
| **P50** | Niall Holmes | *Dynamic field compensation in wearable MEG* |
| **P51** | Nicholas Alexander | *To shoot or not to shoot?: neural signatures of complex decision making in realistic VR scenarios* |
| **P52** | Nicola van Rijsbergen | *Representation of the Dynamic Elements of Expressive Facial Motion* |
| **P53** | Peter Liddle | *The BOLD correlates of transient beta oscillations* |
| **P54** | Pradeep Dheerendra | *Dynamics underlying detection of auditory object boundary* |

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| **P55** | Pramod Gaur | *Effect of folic acid supplementation during pregnancy on brain function of the children at the age of 11 years: a pilot study using magnetoencephalography* |
| **P56** | Robert Alexander Seymour | *Altered Spectral Properties of Resting-State Networks in Autism Spectrum Disorder* |
| **P57** | Ryan Charles Timms | *Time-varying M/EEG Source Reconstruction with Probabilistic Recurrent Neural Networks* |
| **P58** | Ryan M. Hill | *Paediatric Measures with OPM-MEG* |
| **P59** | Sage E.P. Boettcher | *Neural indices of practice target templates* |
| **P60** | Sander van Bree | *Does rhythmic stimulation produce sustained oscillatory activity?* |
| **P61** | **Withdrawn** | |
| **P62** | Shin-Yi Chiou | *Cortical control of anticipatory postural adjustments in healthy adults - an MEG study.* |
| **P63** | Siqi Zhang | *Analysis of oscillatory states in simultaneously recorded intracranial EEG and MEG.* |
| **P64** | Su Yang | *Regional Analysis on using Wavelet-based Method for Mild Cognitive Impairment Detection* |
| **P65** | Sujit Roy | *Non-Stationary Effect due to Head Movement Decreases Performance of MEG Based BCI in Different Sessions* |
| **P66** | Tim Tierney | *A Bayesian approach to assessing spatial resolution in wearable magnetometer arrays* |
| **P67** | Timothy West | *Measuring Directed Functional Connectivity Using Non-Parametric Directionality Analysis: Validation and Comparison with Non-Parametric Granger Causality s* |
| **P68** | Tjerk Gutteling | *Attentional modulation and perceptual load investigated using Rapid Frequency Tagging* |
| **P69** | Umesh Vivekananda | *Interictal source localisation in epilepsy using simultaneous intracranial EEG and MEG* |
| **P70** | Vittorio Pizzella | *Multivariate phase slope index as a tool for disclosing large-scale directed functional connections in MEG* |
| **P71** | Vladimir Litvak | *Resting oscillatory activity and connectivity of the human Ventral Tegmental Area* |
| **P72** | Vladimir Litvak | *Can optical MEG replace intracranial recordings? The case of movement-related responses.* |
| **P73** | Xiangbin Teng | *On Multi-Scale Processing in The Auditory System* |
| **P74** | Yaocong Duan | *Mutual Information for relationship structure and trialwise effect size of input, brain and behavior* |
| **P75** | Yi-Fang Hsu | *Context-dependent suppression of prediction errors involves temporal-frontal activation* |
| **P76** | Yoshihito Shigihara | *The Normative Database changes clinical MEG* |
| **P77** | Yujing Huang | *Cognitive fluctuation in Lewy body dementia: EEG/MEG evidences* |
| **P78** | Zelekha Abid Seedat | *Measuring MEG functional connectivity using coincident bursts in transient beta oscillations* |
| **P79** | Nathan Taylor | *Visual gamma responses are correlated across colour hues but not with luminance contrast* |
| **P80** | Gillian Roberts | *Towards Magnetoencephalography in a Virtual Reality Environment* |

**P81** Lukas Rier *Source localisation of induced beta and theta brain activity in magnetoencephalography (MEG) - a repeatability study*

# Useful things to know

- All catering is vegetarian. If you have registered with special dietary requirements, please let the catering staff know.
- A cloak room is available at the Royal Welsh College.

## If you are presenting a poster or talk…

Please make sure you have read the **information for presenters!**
https://www.meguk.ac.uk/meg-uk-2019-conference/information-for-presenters/

## Abstracts

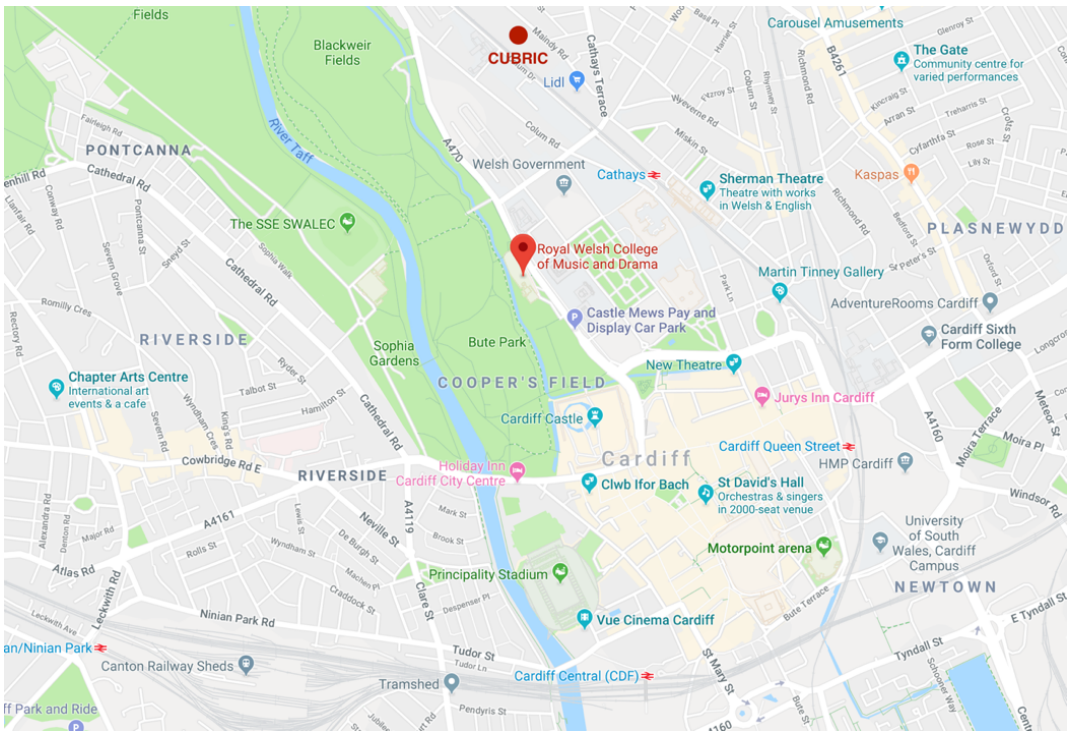
Conference abstracts can be downloaded as a PDF file from the conference website:
https://meguk.ac.uk/wp-content/uploads/sites/2/2019/03/MEGUK2019_Abstracts.pdf

## WiFi

WiFi is available via **Eduroam** at all venues. At the Royal Welsh College, you can also connect via the network '**The Cloud'**. Open a browser and follow the on-screen instructions to register or log on. Once you have registered, you will not need to re-enter login credentials.

## Location

- The **workshop**, **conference** and **evening buffet on Tuesday** are taking place at the Royal Welsh College of Music & Drama on North Road, CF10 3ER.
- The **drinks reception after the workshop on Monday** is taking place at CUBRIC on Maindy Road, CF24 4HQ.



## Recommended pubs

### Near Royal Welsh College

**Pen & Wig**, 1 Park Grove, Cardiff CF10 3BJ
**Goat Major**, 33 High St, Cardiff CF10 1PU

### Near CUBRIC

**The Woodville**, 1-5 Woodville Rd, Cardiff CF24 4DW
**The Flora**, 136 Cathays Terrace, Cardiff CF24 4HY

### If you fancy a stroll through Bute Park…

**Brewhouse & Kitchen,** Sophia Close, Cardiff CF11 9HW
**The Cricketers**, 66 Cathedral Road, Cardiff CF11 9LL

### If you fancy a craft beer…

**Tiny Rebel,** 25 Westgate St, Cardiff CF10 1DD
**Zerodegrees Microbrewery,** 27 Westgate St, Cardiff CF10 1DD
**BrewDog Cardiff**, 31 Westgate St, Cardiff CF10 1EH

## Getting in touch

If you have any questions or concerns, please email the conference organisation team at meguk2019@cardiff.ac.uk or come speak to us at the registration desk.

## MEG UK 2019 is supported by

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