



WEAR
ANNIVERSARY
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brainbox
initiative





WELCOME

Welcome, everyone, to our 10th conference, and back to the Wellcome Collection, which has felt like home for most of it.

I still find it hard to believe it's been ten years. Where does the time go?

When we started the Brainbox Initiative in 2016, the idea was simple. We wanted to help early-career researchers in non-invasive brain stimulation get heard, and give them access to the people and tools that could help them get on. The first conference was in 2017 and that idea has been at the heart of everything we've done since. If you want to support a field, back the people just starting out in it.

The best part has been watching it work. People who stood up for the first time with a three-minute poster pitch have come back as invited speakers. Winners of the Young Investigator Award now have labs of their own. Research Challenge recipients have borrowed equipment, had expert support and turned big ideas into finished studies. Between the workshops, webinars and awards, we've worked with thousands of researchers around the world, and that never gets old.

A lot has changed. In 2020 and 2021 we were forced online, and that, along with the webinar series, helped us maintain momentum and reach a wider audience. We've been hybrid since then, but I truly believe that the event itself, and the opportunity to meet people and form new friendships and collaborations, are among the key successes of the conference.

The science has moved on too. Focused ultrasound had its first dedicated day here in 2020, and this year transcranial ultrasound is one of our four core themes, with talks on everything from the cerebellum and amygdala to the tricky question of knowing exactly where the energy ends up. The field is also bringing together TMS, EEG, MRI and pharmacology, and asking hard questions about how brain stimulation gets out of the lab and to the patients it's meant to help. Last year we marked 40 years since the first TMS-evoked potentials were recorded, which shows how young the field still is and also how far it has come.

The years ahead are what excite us most. The people at the conference will be the ones tackling the big questions. How do we know what stimulation is really doing in the brain? How do we personalise it? How do we make it work reliably outside specialist labs? They'll do it in a more collaborative, global and open way than the pioneers could have imagined, and I hope the connections you make here help with that.

I want to say a special thank you to Professor John Rothwell for agreeing to chair the meeting. John has given us so much support and shared so much of his experience over the years, and it means a great deal to have him with us.

10th

In fact, the Initiative was born out of a chat we had many years ago. We are also honoured to have the John Rothwell Award for mid-career researchers, to acknowledge the amazing work that people have done, and continue to do, during this part of their career.

Thank you to our Scientific Committee for keeping the conference relevant to the people it's for, to our keynote speaker, Professor Matthew Rushworth, and to all our speakers and poster presenters. Thank you to the Wellcome Collection for having us, and to the Brainbox team, who work so hard to make it happen. And thank you most of all to everyone joining us, here and online.

Here's to the next ten years. Enjoy the conference.

ANDREW THOMAS
MANAGING DIRECTOR, BRAINBOX LTD

Welcome to the 2026 Brainbox Initiative Conference. This year is the 10th anniversary meeting and celebrates the extraordinary innovations in brain stimulation technologies that have been developed over that period. To mark this we highlight the ever-increasing interest in transcranial ultrasound stimulation to modulate activity in deep brain structures and cerebellum.

We are very lucky to have a fantastic line-up of speakers from the most highly cited international experts to newly minted postdocs and PhD students. All are passionate about their fields and passionate about sharing their work with as wide an audience as possible. They are complemented by an amazing selection of poster presentations with 3 sessions of poster pitches from researchers who are the next generation of exceptional scientists. There are also updates from the Research Challenge Awards that support early-career neuroscientists conducting ambitious research with non-invasive brain stimulation and imaging methods.

Please ask as many questions as you like, disagree with eminent speakers and enjoy yourself as much as seemly in a public place. A special thanks to the programme committee for their work in selecting the program and especially to Brainbox for their remarkable generosity and support over all these years. To celebrate the 10th anniversary, this year they promise a special treat: an "Ultrasound in 3D demonstration" - not to be missed.

PROFESSOR JOHN ROTHWELL
CONFERENCE CHAIR



THURSDAY 1ST OCTOBER

09:00 Registration & Morning Coffee

09:30 Conference Opening Address

09:45 **Ultrasonic Neuromodulation Shows the Human Amygdala Learns Threats Fast, and Forgets Slow.** - Sjoerd Meijer, Donders Centre for Cognition

10:10 **Enhancing Cholinergic Signalling Non-Invasively in the Human Brain: Evidence from Pharmac-TMS, Pharmac-MRI and TUS Studies.** - Dr Polytimi Frangou, University of Oxford

10:35 **Poster Pitches** - Cohort 1

11:25 **Break**

11:35 **Poster Pitches** - Cohort 2

12:25 **Poster Session**

12:55 **Lunch Break**

13:55 **Exploring Effects of Multiple tES Paradigms on Motor Cortex Excitability: A Double-Blind Sham Controlled Study.** - Dr Alekhya Mandali, University of Sheffield

14:20 **Controllable-Pulse TMS (cTMS) Reveals Intrinsic Plasticity in Human Motor Learning.** - Dr Benjamin Clennell, King's College London

14:45 **Poster Pitches** - Cohort 3

15:35 **Poster Session & Ultrasound in 3D Demonstration**

16:05 **Transcranial Focused Ultrasound Neuromodulation in Cerebellar Circuits: Dissecting Central and Peripheral Contributions.** - Haorun Huang, KU Leuven

16:30 **A Cross-Species Trigeminal Nerve Stimulation Approach to Non-Invasive Modulation of Hippocampal Memory Circuits.** - Dr Liyi Chen, KU Leuven

16:55 **Keynote Address** - Professor Matthew Rushworth, University of Oxford

17:45 **Day 1 Closing Remarks**

17:55 **Poster Session & Networking Session**

19:15 **Day 1 End**

FRIDAY

2ND OCTOBER

08:45 Registration & Morning Coffee

09:15 Welcome

09:20 Selective Changes in Interhemispheric Connectivity in Preclinical Huntington's Disease Gene Expansion Carriers Using Single and Dual-Site Paired-Pulse TMS. - Eva Woods, Trinity College Dublin

09:45 Transcranial Ultrasonic Stimulation (TUS) Would Strongly Benefit from In Vivo Verification Of Target Exposure. - Dr Benjamin Kop, Attune Neurosciences Inc

10:10 "Buckets of Risk" – Understanding Perceptions and Barriers to Translation of Non-Invasive Brain Stimulation for Neurological Conditions. - Associate Professor Melanie Fleming, University of Oxford

10:35 Break

10:55 Young Investigator Award

11:20 John Rothwell Award

11:45 The Effects of Mid-Insula Transcranial Ultrasound Stimulation (TUS) on Bodily Attention. - Gabriel Mackie, University of Cambridge

12:10 Lunch

13:10 Sleep-Wake Regulation of Corticospinal Excitability. - Dr Mark Turnbull, Northumbria University

13:35 Active Ingredients of Antidepressant Combined Stimulation. - Jemima Shickle, University of Nottingham

14:00 Focused Transcranial Ultrasound Stimulation of the Human Hippocampus Disrupts Structure Learning and Inference. - Deng Pan, University of Oxford

14:25 Break & Ultrasound in 3D Demonstration

14:55 Frequency-Specific Enhancement of Sleep Spindles with Non-Invasive Thalamic Stimulation. - Tobias Raufeisen, University of Surrey

15:20 Research Challenge Update

15:35 Research Challenge Presentation

16:05 Poster Prize Presentation

16:25 Closing Remarks & Wrap-up

SPH41

Conference Chair:

**PROFESSOR
JOHN ROTHWELL**

UCL Queen Square Institute of Neurology

Professor John Rothwell is currently Emeritus Professor of Human Neurophysiology at UCL Queen Square Institute of Neurology, London.

As a postdoc he was one of the first to use the Merton technique of high voltage electrical stimulation of the brain and also one of the first to experience TMS when Tony Barker and Reza Jalinous first demonstrated their new machine in 1986.

His main current interests are in the physiology and pathophysiology of human movement and its disorders, and in basic mechanisms of restoration of function after brain injury, particularly stroke. Current research projects include using neurophysiological techniques to study the mechanisms of neural plasticity that underpin motor learning, and using this knowledge to devise new therapeutic interventions for rehabilitation after stroke.



KBHS

Keynote Speaker:

**PROFESSOR
MATTHEW RUSHWORTH**

University of Oxford

Neural Mechanisms of Decision Making and Action Selection.

The Brainbox Initiative is honoured to welcome Professor Matthew Rushworth as the keynote speaker for this year's Brainbox Initiative Conference.

Professor Matthew Rushworth is the head of the department of Experimental Psychology at the University of Oxford. His research is aimed at understanding the brain processes that allow us to work out how good the outcome of a choice might be and which allow us to make decisions between multiple choices.

His work places a particular focus on the role played by areas of prefrontal and cingulate cortex. He is also interested in looking at the connections between brain regions and the interactions they mediate during decision-making and attentional selection.



SPH41

DR LIYI CHEN

Leuven Brain Institute, KU Leuven

A Cross-Species Trigeminal Nerve Stimulation Approach to Non-Invasive Modulation of Hippocampal Memory Circuits.

Liyi Chen, MD, PhD, is a neuroscientist and postdoctoral researcher at the Leuven Brain Institute, KU Leuven, Belgium.

With a clinical background in neurology, his research focuses on the mechanisms and translational potential of non-invasive neuromodulation, including transcranial focused ultrasound stimulation, trigeminal nerve stimulation, and transcranial electrical stimulation. By combining in vivo multichannel electrophysiology, human EEG and intracranial EEG recordings, and cross-species experimental approaches, he investigates how neuromodulation influences neuronal excitability, hippocampal–cortical circuits, memory processing, and cognition.

His recent work has particularly examined how ultrasound parameters shape neuronal responses and how peripheral and transcranial stimulation can be optimized to modulate memory-related brain networks. His research has been published in journals including Brain Stimulation and Translational Psychiatry.

DR BENJAMIN CLENNELL

King's College London

Controllable-Pulse TMS (cTMS) Reveals Intrinsic Plasticity in Human Motor Learning.

Ben Clennell is a Postdoctoral Research Associate in Dr Ricci Hannah's lab at King's College London. His research bridges non-invasive brain stimulation, neurophysiology, and plasticity.

Ben completed his PhD at the University of Bristol under the supervision of Dr Daniel Whitcomb, where his work focused on understanding the cellular plasticity mechanisms engaged by transcranial ultrasound stimulation (TUS). His current postdoctoral work utilises controllable-pulse transcranial magnetic stimulation (cTMS) to non-invasively study cortical neuron physiology and plasticity in the human brain in relation to learning and neuromodulation.

ICHS

DR ALEKHYA MANDALI

University of Sheffield

**Exploring Effects of Multiple tES Paradigms on Motor Cortex
Excitability: A Double-Blind Sham Controlled Study.**

Dr Alekhya Mandali is a Lecturer at the School of Psychology, University of Sheffield, and heads the Cognitive Computational Neuropsychiatry lab. She completed her PhD in computational neuroscience at IIT Madras, followed by postdoctoral work at the University of Cambridge and the University of Oxford.

Her current research focuses on two themes: understanding how electrical stimulation protocols affect cortical hyperexcitability and its reduction, and developing neuromodulatory interventions for impulsive-compulsive disorders, particularly alcohol use disorder.

Her work integrates non-invasive (TMS/tES) and invasive brain stimulation, electrophysiology, and computational modelling to identify neural and behavioural markers of neuropsychiatric disorders and to design mechanism-based interventions.



GABRIEL MACKIE

University of Cambridge

**The Effects of Mid-Insula Transcranial Ultrasound Stimulation (TUS)
on Bodily Attention.**

Gabriel Mackie is a PhD student at the MRC Cognition and Brain Sciences Unit at the University of Cambridge, supervised by Prof. Camilla Nord and funded by the MRC and ESRC. Prior to his PhD he completed an Integrated Masters in Psychology at the University of York, with Dr David Pitcher as his thesis supervisor.

His research focuses on interoceptive processing in mental health, a transdiagnostic feature of psychopathology that is highly relevant to patient experience. Specifically, he is interested in whether these neural processes can be causally modulated using Transcranial Ultrasound Stimulation, giving us insight into the mechanisms underlying such conditions and potential treatment vectors.



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ASSOCIATE PROFESSOR MELANIE FLEMING

University of Oxford

“Buckets of Risk” – Understanding Perceptions and Barriers to Translation of Non-Invasive Brain Stimulation for Neurological Conditions.



Associate Professor Melanie Fleming leads the NeuroRehabilitation Research group in the Nuffield Department of Clinical Neurosciences, University of Oxford. The aim of the group is to better understand the role of sleep in learning and recovery after brain injury, and to test novel techniques to boost sleep and rehabilitation processes.

Alongside this, Dr Fleming is the Academic Lead for Patient and Public Involvement and Engagement for the Medical Sciences Division of the University of Oxford, the Oxford Centre for Integrative Neuroimaging, and the MRC Centre of Research Excellence in Restorative Neural Dynamics. Dr Melanie Fleming is passionate about working together with patients and the public to guide research, and through these roles she supports others to engage with the public in a meaningful way.

DR POLYTIMI FRANGO

University of Oxford

Enhancing Cholinergic Signalling Non-Invasively in the Human Brain: Evidence from Pharmacology-TMS, Pharmacology-MRI and TUS Studies.



Dr Polytimi Frangou is a Sir Henry Wellcome Postdoctoral Fellow at the Centre for Integrative Neuroimaging (Ox CIN) and the Brain Network Dynamics Unit (BNDU) at the University of Oxford. She completed her PhD in Cognitive Neuroscience at the University of Cambridge and a degree in Electrical and Computer Engineering at the National Technical University of Athens in Greece.

Dr Frangou is interested in the neurophysiological mechanisms through which brain chemicals GABA and acetylcholine facilitate human cognitive function and brain plasticity. To address these questions, she combines ultra-high field MRI and magnetic resonance spectroscopy with pharmacology and non-invasive brain stimulation, in healthy individuals and clinical populations. Her work spans a range of neuromodulation techniques, including tDCS, tACS, TMS, peripheral nerve stimulation (median and vagus nerve), and TUS.

ICHS

DR BENJAMIN KOP

Attune Neurosciences Inc.

Transcranial Ultrasonic Stimulation (TUS) Would Strongly Benefit from In Vivo Verification of Target Exposure.

Benjamin Kop is a Senior Research Scientist at Attune Neurosciences Inc. and former postdoc at Stanford University in Professor Kim Butts Pauly's lab.

After focusing on experimental design, peripheral confounds, and sensorimotor ultrasound neuromodulation in his PhD, Benjamin joined the Butts Pauly lab to investigate dose-dependent local and network-level effects of TUS using magnetic resonance acoustic radiation force imaging (MR-ARFI). At Attune, Benjamin applies TUS to investigate therapeutic effects across a range of clinical indications.



HAORUN HUANG

KU Leuven

Transcranial Focused Ultrasound Neuromodulation in Cerebellar Circuits: Dissecting Central and Peripheral Contributions.

Haorun Huang is a PhD candidate in Neuroscience at KU Leuven (Belgium) and holds a Master's degree in Neurosurgery. His research combines neuromodulation, neuroengineering, and systems neuroscience to understand how non-invasive brain stimulation interacts with neural circuits.

His doctoral work focuses on the mechanisms of transcranial ultrasound stimulation (TUS). Using multimodal electrophysiology and advanced signal analysis, he investigates how ultrasound modulates neuronal activity across multiple spatial scales—from single neurons and local circuits to distributed brain networks—with the aim of facilitating the clinical translation of TUS for precision neuromodulation in neurological disorders.



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SJOERD MEIJER

Donders Centre for Cognition

Ultrasonic Neuromodulation Shows the Human Amygdala Learns Threats Fast, and Forgets Slow.



Sjoerd Meijer is a PhD student at the Verhagen Lab at the Donders Centre for Cognition. Passionate about circuit-level neuroimaging and neuromodulation, he aims to discover how brain stimulation can alleviate anxiety in humans by using a combination of state-of-the-art brain stimulation techniques, behavioural tasks, and functional neuroimaging to map causal brain-behaviour relationships. His research uses transcranial ultrasonic stimulation (TUS), which enables the targeting of the source of anxiety deep in the brain.

Furthermore, Sjoerd Meijer investigates the potential anxiolytic effects of dual-site transcranial alternating current stimulation (tACS) on approach-avoidance behaviour in social anxiety. His research could open up new avenues for anxiety disorder therapies.

DENG DAIN

University of Oxford

Focused Transcranial Ultrasound Stimulation of the Human Hippocampus Disrupts Structure Learning and Inference.



Deng is a DPhil (PhD) candidate in Cognitive Neuroscience at the University of Oxford, Department of Experimental Psychology.

He employs computational modelling, neuroimaging, and non-invasive focused ultrasound stimulation to understand the neurocomputational mechanisms underlying structure learning, flexible decision-making, and planning in social contexts.

ICHS

JEMIMA SHICKLE

University of Nottingham

Active Ingredients of Antidepressant Combined Stimulation.

Jemima Shickle is a second-year PhD student at the University of Nottingham, looking at combining neuromodulation techniques to treat depression.



TOBIAS RAUFEISEN

University of Surrey

Frequency-Specific Enhancement of Sleep Spindles with Non-Invasive Thalamic Stimulation.

Tobias Raufeisen is a PhD student in neuroscience at the University of Surrey, where he researches the effects of non-invasive deep brain stimulation on sleep. His work combines computational modelling with simultaneous imaging and stimulation during sleep to test predictions experimentally, with the long-term goal of developing new methods for investigating the neural mechanisms of sleep, and translating them into therapeutic interventions.

Prior to his PhD, he studied the interactions between memory systems via EEG recordings at Maastricht University. Outside the lab, Tobias enjoys making music and practising martial arts.



SPH41

EUVA WOODS

Trinity College Dublin

Selective Changes in Interhemispheric Connectivity in Preclinical Huntington's Disease Gene Expansion Carriers Using Single and Dual-Site Paired-Pulse TMS.



Eva Woods is a third year PhD researcher studying neurophysiology in the Discipline of Physiology, School of Medicine at Trinity College Dublin, and a Huntington's Disease Society of America Human Biology Project Research Fellow.

Her research focuses on identifying early biomarkers of Huntington's disease and amyotrophic lateral sclerosis using multimodal neurophysiology and neuroimaging techniques, including electroencephalography, transcranial magnetic stimulation and magnetic resonance imaging. Her research is supported in part by the Brainbox Research Challenge, awarded to her supervisor Dr Róisín McMackin, and by the Huntington's Disease Society of America.

Eva is actively involved in Huntington's disease advocacy and patient and public involvement, including leading Huntington's Disease Research Awareness Days and establishing Ireland's first Huntington's disease patient and public involvement panel. Her work has been recognised with awards including Best Platform Presentation at the British Society for Clinical Neurophysiology/Irish Society for Clinical Neurophysiology meeting and the Neuroscience Ireland Best Speaker Award.

ICHS

DR MARK TURNBULL **Northumbria University**

Sleep-Wake Regulation of Corticospinal Excitability.

Dr Mark Turnbull recently completed a PhD in Psychology at Northumbria University.

His research focuses on the interaction between sleep homeostasis and circadian timing and how these processes influence neural processes and cognitive performance across the sleep-wake cycle. His work combines the use of transcranial magnetic stimulation (TMS) and electroencephalography (EEG) to investigate changes in corticospinal excitability and neural markers of sleepiness during the biological night.



POSTER

TITAN-D: TEMPORAL INTERFERENCE TARGETED AUGMENTATION OF NEUROMODULATION FOR DEPRESSION: A PROOF-OF-CONCEPT MECHANISTIC STUDY

Lucy Webster, Jessica Gannon, Mohammad Zia Ul Haq Katshu, Richard Morriss, Paul M. Briley

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2. NIHR Nottingham Biomedical Research Centre, University of Nottingham
3. Institute of Mental Health, University of Nottingham, Nottingham, UK

POSTER

HEAD IMPACT FREQUENCY AND MAGNITUDE ARE ASSOCIATED WITH CORTICOSPINAL INHIBITION AFTER COMBAT SPORTS SPARRING: AN EXPLORATORY PILOT STUDY

Dr Nasir Uddin¹, Dr Patrick Schoenmakers¹, Mr Thomas Adams¹, Miss Leeza Voyevoda¹, Dr Ben Jones¹, Dr Stephen Patterson², Dr Dawson Kidgell³, Dr Alan J Pearce⁴, Dr Mark Waldron^{5,6,7} & Dr Jamie Tallent^{1,3}.

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3. Monash Exercise Neuroplasticity Research Unit, Department of Physiotherapy, School of Primary and Allied Health Care, Faculty of Medicine, Nursing and Health Science, Monash University, Melbourne, Australia.
4. Swinburne Neuroimaging Facility (SNI), School of Health Sciences, Swinburne University of Technology, Melbourne, Australia.
5. Applied Sport, Technology, Exercise and Medicine, College of Engineering, Swansea University, Swansea, Wales, UK.
6. School of Health and Behavioural Sciences, University of the Sunshine Coast, Queensland, Australia.
7. Welsh Institute of Performance Science, Swansea University, Swansea, UK.

ELIXS



PEOPLE'S
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POSTER 3

A MULTI-SCALE MODEL OF TRANSCRANIAL MAGNETIC STIMULATION OF THE CEREBELLUM

Eleonora Bernasconi^{*1}, Nada Yousif¹, Volker Steuber¹

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POSTER 4

THE HUMAN NUCLEUS ACCUMBENS PLAYS A CAUSAL ROLE IN ENHANCING MUSIC EVOKED HEDONIA: A TRANSCRANIAL FOCUSED ULTRASOUND STIMULATION STUDY

Franz R. Schmid¹, Maximilian Kathofer¹, Blanca T.M. Spee^{1,2}, Matthew Pelowski¹, Julia Sophia Crone^{1,3}

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POSTER

POSTER 5

DOES PERSONALISED OR GENERIC NEUROMODULATION BETTER MODULATE BRAIN FUNCTION AND BEHAVIOUR?

Danielle L Kurtin¹, Andreas Højlund², Melanie Steiner³, Pedro Vicente¹, Yonatan Sanz-Perl⁴, Jakub Vohryzek⁴, Gustavo Deco⁴, Nir Grossman¹, Ines R Violante⁵

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5. School of Biomedical Engineering & Imaging Sciences, King's College London, London, UK

POSTER 6

TACS MODULATES ALPHA OSCILLATIONS IN A FREQUENCY- AND MONTAGE-SPECIFIC MANNER

Julio Rodriguez-Larios^{1,2}, Anna Ragone¹, Satyam Chauhan^{1,2}, Koji Koizumi^{1,2,3}, Caroline Di Bernardi Luft^{1,2}

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POSTER 7

ASSESSMENT OF TEMPORAL INTERFERENCE STIMULATION SAFETY AT 7T MRI

Anna Sadilova¹, Yishu Chen¹, Laith Alexander¹, Rebecca Meagher¹, Myles Capstick², Stefan Beerli², Mischa Sabathy², Esra Neufeld², Niels Kuster², David Carmichael¹, Ines R Violante¹

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2. Foundation for Research on Information Technologies in Society (IT²S), Zurich, Switzerland

POSTER 8

THE EFFECTS OF LOW-INTENSITY ULTRASOUND STIMULATION OF THE DEEP CEREBELLAR NUCLEI ON MOVEMENT AND COGNITION

Caroline Nettekoven, Georgina Summers, Qianyu Zhang, Miriam Klein-Fluegge

1. Department of Experimental Psychology, University of Oxford

POSTER

POSTER 9

CHARACTERISING NEURAL AND PERIPHERAL PHYSIOLOGICAL CUE REACTIVITY IN PEOPLE WITH NICOTINE DEPENDENCE: A PILOT STUDY

Oliver, H¹, Kleine, P¹, Kurtin, D¹, Hand, L¹, Paterson, L¹

1. Division of Psychiatry, Dept of Brain Sciences, Imperial College London

POSTER 10

PRECISION NEUROMODULATION WITH CLOSED-LOOP FTUS GUIDED BY ULTRA HIGH-FIELD FMRI

Dr Christine Licht

1. Department of Psychiatry and Psychotherapy, Non-invasive Brain Stimulation Lab, District Hospital, Guezburg, Germany

HMRS



PEOPLE'S
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POSTER 11

PREFRONTAL ACTIVATION PREDICTS RESPONSE TIME AND IS SHAPED BY AGE AND LIFESTYLE

Rufus Mitchell Heggs^{1,2*}, Daniel Tamkin^{1,2*}, Lucas Scherdel¹, Anita Snowdon-Farrell^{1,2}, Alfred Curry², Onayomi Rosenior-Patten^{1,2}, Simon R. Schultz^{1,2}

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POSTER 12

ARTIFACT-SUPPRESSED REAL-TIME NEURAL DECODING DURING AM-TACS FOR BI-DIRECTIONAL BCIS

Mareike Vermehren¹, Niels Peekhaus¹, David Haslacher¹, Teresa Höhn¹, Cornelius Angerhöfer¹ & Surjo R. Soekadar^{1*}

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POSTER

POSTER 13

BETA-TACS REDUCES GABA LEVELS IN THE MOTOR CORTEX OF HEALTHY ADULTS

Polytimi Frangou, Oana Puicar, Magdalena Nowak, Catharina Zich, Benoit Duchet, William Clarke, Charlotte J. Stagg

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POSTER 14

THETA-BURST ULTRASOUND STIMULATION CAUSES LASTING CHANGES TO OBJECT RECOGNITION BEHAVIOUR

William W. Watts, Eleanor Purle, Robyn Cuthell, Daniel J. Whitcomb

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HRS



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POSTER 15

THE EFFECT OF HD-TDCS OVER THE POSTERIOR PARIETAL CORTEX ON ASSOCIATIVE MEMORY IN OLDER ADULTS

Rajanya Chakraborty, Chimkaha Grace Abasiakama Ngubo, Marco Sandrini, Karen Brandt

1. University of Roehampton

POSTER 16

MRI COMPATIBLE TEMPORAL INTERFERENCE STIMULATION (TIS): IMAGE ARTIFACT ANALYSIS FROM A PHANTOM-BASED COMPARISON OF FILTER CONFIGURATIONS

Mattia Ravasio¹, Giulia Liberati^{1,2}, Klaus Schellhorn³, Alexander Hunold^{3,4}

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POSTER

POSTER 17

AGE-DEPENDENT EFFECTS OF TITRATING ANODAL TRANSCRANIAL DIRECT CURRENT STIMULATION (TDCS) INTENSITY ON MOTOR SEQUENCE LEARNING

Amba M. Frese^{1,2,3}, Ruxandra Ungureanu¹, Ensiyeh Ghasemian-Shirvan^{1,2,3,6}, Lorena Melo^{1,7}, Yiwu Xiong^{1,8}, Marie C. Beaupain^{1,8}, Min-Fang Kuo¹, Raf L. J. Meesen³, Michael A. Nitsche^{1,4,5}

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POSTER 18

DUAL NEUROMODULATION FOR DEPRESSION: BOOSTING TRANSCRANIAL MAGNETIC STIMULATION (TMS) WITH TRANSCRANIAL ELECTRICAL STIMULATION (TES)

Yue Peng¹, Paul M Briley^{2,3,4}, Dan Joyce^{1,5}, Fabian Devlin¹, Sahil Bhandari¹, Rachel Crick^{1,5}, Ngoc Jade Thai¹

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5. University of Liverpool, Liverpool, UK

HHS



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POSTER 19

WHAT DO PEOPLE WITH LIVED EXPERIENCE OF MENTAL HEALTH CONDITIONS THINK OF NEUROMODULATION? A CO-PRODUCED UK SURVEY WITH FOLLOW-UP FOCUS GROUPS

Sue Fen Tan¹, Jemima Shickle^{1,2}, Lucy Webster^{1,2}, Debbie Butler¹, David Goddard¹, Louisa Gerrard¹, Mohammad Zia Ul Haq Katshu^{1,2}, Sudheer Lankappa¹, Cyril Atkinson-Clement^{1,2}, Marcus Kaiser^{1,2}, Richard Morriss^{1,2}, Paul M Briley^{1,2}

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POSTER 20

TRANSCRANIAL ULTRASOUND STIMULATION OF THE DENTATE NUCLEUS AND SENSORIMOTOR CORTICAL DYNAMICS: AN ONGOING COMBINED EEG-ACCELEROMETRY STUDY

Robrecht Pieters, Myles Mc Laughlin

1. KU Leuven

POSTER

POSTER 21

USING PSEUDO-CONTINUOUS ARTERIAL SPIN LABELLING TO ASSESS TARGET ENGAGEMENT OF NON-INVASIVE DEEP BRAIN STIMULATION OF THE LIMBIC SYSTEM

Yishu Chen^{1,#}, Laith Alexander^{1,2,#}, Anna Sadilova¹, Fernando O. Zelaya², Melanie Steiner³, Esra Neufeld³, Niels Kuster³, Paul Shotbolt², Ines R. Violante^{1,*}

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#These authors have contributed equally to the study and share the authorship.

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POSTER 22

COGNITIVE AND PHYSIOLOGICAL EFFECTS OF MONOPHASIC AND BIPHASIC PREFRONTAL ITBS

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POSTER 23

DECODING REAL-WORLD VISUAL SCENES FROM ALPHA AND GAMMA BAND FLICKER EVOKED OSCILLATIONS IN HUMAN EEG

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POSTER 24

SIMULTANEOUS ELECTROPHYSIOLOGY AND TWO-PHOTON IMAGING REVEAL MULTI-SCALE SIGNATURES OF ULTRASOUND NEUROMODULATION

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POSTER 25

MECHANISMS OF CORTICAL DISINHIBITION IN MOTOR CORTEX

Binyu Luo, Beatriz Silveira de Arruda, Jack De Havas, Pietro Antonio Bruno, Sven Bestmann

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POSTER 26

NON-INVASIVE FOCUSED ULTRASOUND STIMULATION OF THE GREATER OCCIPITAL NERVE DURING PROPOFOL ANAESTHESIA: PRELIMINARY BEHAVIOURAL EFFECTS AND OXYGENATION-ASSOCIATED VARIABILITY

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THE IMPACT OF TARGETING PRECISION IN TRANSCRANIAL FOCUSED ULTRASOUND STIMULATION (TFUS)

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POSTER 28

METHOD-DEPENDENT VARIABILITY AND RELIABILITY OF CORTICAL SILENT PERIOD MEASUREMENTS IN AMYOTROPHIC LATERAL SCLEROSIS

Ryota Kuroiwa, Takeru Nara, Atsushi Murata

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POSTER 29

BEYOND THE CURRENT: HOW EXPECTATIONS SHAPE RESPONSES TO RIFG TDCS

Jemma Sedgmond, Thomas Freeman, Lara Tang, Scott P. Jones

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POSTER 30

NON-INVASIVE HIPPOCAMPAL STIMULATION MODULATES MEMORY CONSOLIDATION AND SLEEP OSCILLATIONS IN HUMANS

Prince Okyere^{1,2}, Junheng Li^{2,3,4}, Tobias Raufeisen⁵, Ketevan Alania, Daniella Louise Jones¹, Melanie Steiner⁷, Esra Neufeld⁷, Niels Kuster^{7,8}, Nir Grossman^{3,4}, Derk-Jan Dijk^{5,6}, Roi Cohen Kadosh¹, Ullrich Bartsch^{5,6}, Valeria Jaramillo^{1,5,6}, and Ines R. Violante^{2,1*}

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POSTER 31

FINE-TUNING OF CLOSED-LOOP NIBS APPROACH USING TEMPORAL INTERFERENCE STIMULATION (TIS) DURING SLEEP

Gabrielle Allohverdi, Tobias Raufeisen, Prince Okyere, Hope Henderson, Genevieve Albouy, Ullrich Bartsch, Ines Violante

POSTER 32

POSITIONAL BRAIN SHIFT IN NON-INVASIVE NEUROMODULATION: LITERATURE MAPPING AND WITHIN- SCANNER TFUS PILOT

Franz R. Schmid, Joana M. Fernandes, Tobias Trieb, Julia S. Crone

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POSTER 33

INTRACELLULAR SIGNALLING MECHANISMS UNDERLYING NEUROMODULATION BY FOCUSED ULTRASOUND STIMULATION

Eleanor Purle, William W Watts, Robyn Cuthell, Jessica Le, Olivia Coeshall, Daniel J Whitcomb

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POSTER 34

FREQUENCY-DEPENDENT SENSORY THRESHOLDS DURING TEMPORAL INTERFERENCE STIMULATION

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BEHAVIOURALLY TIMED BETA-TACS MODULATES MOVEMENT-RELATED EEG ACTIVITY IN CHRONIC STROKE

Catharina Zich, Demi Brizee, Zeyu Xu, Adrian Knorz, Nicholas Shackle, Min Wu, Lara Biller, Tessa Yates, Grace Kimber, Nina Hilton, Nour Bouzidi, Xavier Zacny, Andrew Sharott, Melanie Fleming, Charlotte Stagg

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POSTER 36

FOCUSED TRANSCRANIAL ULTRASOUND STIMULATION OF THE HUMAN HIPPOCAMPUS DISRUPTS STRUCTURE LEARNING AND INFERENCE

Deng Pan, Naomi Kingston, Simone D'Ambrogio, Miruna Rascu, Pranav Sankhe, Shuyi Luo, Miriam C. Klein-Flügge, Ali Mahmoodi, Matthew F.S. Rushworth

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POSTER 37

PRELIMINARY EFFICACY OF HIGH-FREQUENCY REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION COMBINED WITH NICOTINE REPLACEMENT THERAPY FOR SMOKING CESSATION: A FLEMING-TYPE PHASE II RANDOMIZED CONTROLLED TRIAL

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3. Translational Neurostimulation Laboratory, Department of Psychiatry, University of Oxford, UK

POSTER 38

STIMULATION FREQUENCY EFFECTS ON TRANSCRANIAL MAGNETIC STIMULATION (TMS)-INDUCED MOTOR EVOKED POTENTIAL (MEP) AMPLITUDE AND VARIABILITY

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5. Central Clinical School, University of Sydney, Australia



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POS THIR 339

EXPECTANCY OF PAINFUL ELECTRICAL STIMULATION IMPAIRS SENSORY MEMORY AND ALTERS SPATIAL RECALL

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POS THIR 440

MU-PHASE DEPENDENT AFFERENT STIMULATION MODULATES SOMATOSENSORY-EVOKED POTENTIALS USING A CLOSED-LOOP SYSTEM

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POSTER 441

INVESTIGATING THE ROLE OF THE RIGHT POSTERIOR PARIETAL CORTEX IN EMOTIONAL ATTENTIONAL ORIENTING: A TMS-EEG STUDY

Anika Gogia

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POSTER 442

NON-INVASIVE THALAMOCORTICAL NEUROMODULATION WITH LOW-INTENSITY FOCUSED ULTRASOUND FOR PERSISTENT DEVELOPMENTAL STUTTERING

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POSTER 443

QUANTIFYING THE NUMBER OF TRIALS NEEDED TO MEASURE SICI RELIABLY IN A LARGE SAMPLE

Marcos Moreno-Verdú, Baptiste Waltzing, Elise Van Caenegem, Charlène Truong, Robert Hardwick

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POSTER 444

FRACTAL RESONANCE MODEL (FRM): AN ADVANCED QEEG PLATFORM FOR NON-LINEAR DYNAMICS AND BIOPHYSICAL MODELLING

Viviane Dasilva, Olimpia Pino

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BRAINBOX INITIATIVE AWARDS

Young Investigator Award

The Brainbox Initiative Young Investigator Award aims to stimulate and reward the very best, most novel neuroscience research being carried out by early-career academics. We welcome applications from current graduate students and postdoctoral fellows, and encourage anyone who has undertaken notable research with non-invasive brain stimulation or imaging techniques to submit an entry for consideration.

Each year, we award one successful applicant with:

- A presentation slot to speak about their research at the Brainbox Initiative Conference in London (including a travel and accommodation bursary);
- A £500 cash prize;
- Ongoing support and promotion of your research by the Brainbox Initiative;
- The opportunity to work with the Brainbox Initiative as a Brainbox Ambassador as part of our workshop and webinar series.

Research Challenge Award

Established in 2016, the Brainbox Initiative Research Challenge was specifically designed to help the most promising up-and-coming early-career neuroscientists with ambitious research proposals for integrated non-invasive brain stimulation and imaging studies to gain the equipment and support that they require to carry out these projects. If you are working with non-invasive brain stimulation or imaging methods including—but not limited to—TMS, tES, TUS, fNIRS, neuronavigation, or EEG, then we'd love to hear more about the research that you would like to carry out.

The comprehensive Brainbox Initiative Research Challenge prize will support one researcher in accessing the tools and resources necessary to complete their proposed proof-of-principle or pilot study.

In full, our Research Challenge winner will be supported with:

- A loan of specialist non-invasive brain stimulation and/or imaging equipment*, courtesy of Brainbox Ltd, for a period of up to three months;
- Expert technical help and product support from the Brainbox team of product and application specialists
- A presentation slot at the Brainbox Initiative Conference to share updates on their work;
- Plus many other opportunities at Brainbox Initiative webinars, workshops, and more.

*Excludes MAG4Health 4He OPM-MEG System.

JOHN ROTHWELL AWARD

The prestigious John Rothwell Award has been created by the Brainbox Initiative to acknowledge and reward excellence in non-invasive brain stimulation research that stimulates further work at a higher scientific level.

Each year, we will award one successful applicant with:

- A presentation slot to speak about their research at the Brainbox Initiative Conference (including a travel and accommodation bursary);
- An invitation to join us as a guest speaker at a Brainbox Initiative workshop and/or webinar in 2026;
- A £1,000 cash prize;
- Ongoing support and promotion of your research by the Brainbox Initiative;
- An invitation to collaborate with the Brainbox Initiative to develop a workshop relevant to the winner's research area;
- And a profile and video of the winner detailing the successful applicant's award and research.

Learn more about the Brainbox Initiative Awards today at brainbox-initiative.com/awards



UPCOMING WILDERIC STUDIOS

Introduction to Non-Invasive Brain Stimulation | Cardiff

26 – 27 November 2026, 9:00

Join us for a comprehensive two-day workshop on an Introduction to Non-Invasive Brain Stimulation (NIBS), in Cardiff, UK. This workshop is designed for researchers and students who are interested in exploring the fundamentals and applications of cutting-edge NIBS techniques.

Taking place in Cardiff, UK, we will host a comprehensive workshop delving into the fundamentals behind the featured techniques:

- Transcranial Ultrasound Stimulation (TUS)
- Transcranial Magnetic Stimulation (TMS)
- Transcranial Electrical Stimulation (tES)

Each session will include theoretical lectures, offering you a unique opportunity to gain foundational knowledge and experience with topics such as:

- Core principles and mechanisms behind Transcranial Ultrasound Stimulation (TUS), Transcranial Magnetic Stimulation (TMS), and Transcranial Electrical Stimulation (tES).
- Safety considerations for each technique, ensuring responsible and effective use.
- Practical sessions introducing these techniques, including TUS equipment setup, TMS coil positioning, and tES protocol administration.
- Advanced integration of NIBS with neuronavigation.
- Ethical and safety considerations crucial to conducting NIBS research, with a focus on maintaining high standards of practice.

Register today at brainbox-initiative.com/workshops

UPCOMING WORKSHOP STUDIOS

Practical Introduction to Transcranial Ultrasound Stimulation | Lyon **21 February 2027, 14:00**

The Brainbox Initiative, in partnership with leading experts in the field of transcranial-focused ultrasound stimulation (TUS), is excited to announce a Sunday afternoon workshop at the 7th International Brain Stimulation Conference in Lyon, France. This workshop is designed to provide attendees with an in-depth understanding of TUS techniques and their applications in non-invasive brain stimulation research.

Topics covered:

- Fundamentals of transcranial ultrasound stimulation (TUS) as a non-invasive brain stimulation technique
- Research applications and uses of TUS
- Demonstrations of TUS equipment
- Advanced computational modelling techniques for focused ultrasound

The workshop will be led by esteemed experts in the field, who will provide attendees with valuable information and insights that they can take back to their own research. Additionally, attendees will have the opportunity to ask questions and engage in discussion with the workshop leaders and other attendees.

Registration for this workshop is free for all attendees who have registered for the 7th International Brain Stimulation Conference. However, spaces for this event are strictly limited, so we encourage delegates to register soon to avoid missing out. This is an excellent opportunity for researchers to expand their knowledge of TUS and to network with other experts in the field.

Don't miss out on this opportunity to learn from the best and to advance your knowledge of TUS techniques. Register now for the 7th International Brain Stimulation Conference and the TUS workshop.

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