

# THE 22ND INTERNATIONAL CONFERENCE ON BIOMAGNETISM

28 AUGUST - 1 SEPTEMBER 2022 UNIVERSITY OF BIRMINGHAM BIRMINGHAM, UK

### CONFERENCE BROCHURE

BIOMAG2022.ORG



# CONTENTS

Page	
4-5	Welcome to Birmingham
6-9	Committees
10-11	Venue maps
12-17	Conference Programme
18-21	Keynote Speakers
22-29	Satellites
30-67	Symposiums
68-87	Orals
88-529	Posters
530-531	Awards
532-533	Social Events
	Sponsors and exhibitors



# WELCOME TO BIRMINGHAM!



Dear all,

I would like to welcome you to the 22nd International Conference on Biomagnetism in Birmingham. The conference was first planned for 2020 but was postponed twice due to the Covid19 pandemic. We are therefore particularly excited that we finally can go ahead and welcome our dear friends and colleagues to Birmingham. The conference will be in a hybrid format to allow for delegates to partake who cannot travel due to existing Covid19 restrictions or CO2-related travel concerns.

Due to the hard work of the Scientific Committee, we have an exciting and scientifically strong program. Our keynote speakers are international leaders in their respective fields. The topics in the programme cover amongst others cognitive neuroscience, clinical neuroscience and cardiology, as well as the development of software tools and new sensor technology. The researchers selected to present include a diverse group of exceptional researchers. In particular there is a strong representation of young talent from all over the globe which vouches good for the future of our field.

The Biomag2022 conference will be held at the campus of the University of Birmingham. The city of Birmingham has a strong research community on MEG including researchers from Aston University and the University of Birmingham. The MEG and OPM research at the University of Birmingham is conducted at Centre for Human Brain Health. Please come visit us. The conference itself will be hosted in the historical Aston Webb buildings. I hope you will get a chance to explore the university campus as well. The Green Heart is a new parkland in the centre of the university with a range of wildflowers, trees, and water features. If you get a chance to visit, I am sure you will be impressed by the Winterbourne Botanical Gardens as well as The Barber Institute of Fine Arts. I hope you will also find some time to explore the Birmingham city centre and the surrounding areas. The city is one of the most multicultural in the UK, which is contributing to an eclectic vibe as well as a rich cultural life. The city has been in rapid transition over the last decade and the downtown area has recently been rejuvenated. There are plenty of sites to explore around the centre including the canals intersecting the city.

Over the years the Biomag meetings have been my favourite conference where I have enjoyed learning about the recent developments in our field as well as making new friends and collaborations. It is therefore a great privilege for me to chair the Biomag2022 meeting. I would like to thank the many people involved in organising the Biomag conference. Researchers from the 10 MEG sites in the UK have provided invaluable support as well as the Event Management Team at the University of Birmingham.

I wish you all an inspiring Biomag2022 conference!

**Professor Ole Jensen** Centre for Human Brain Health, University of Birmingham



### INTERNATIONAL ADVISORY BOARD 2021-2024

Ole Jensen, University of Birmingham (Biomag2022 Chair) - IAB Chair

Paul Sowman, Sydney, Australia (Biomag2024 Chair)

Laura Marzetti, Italy, (BiomagCentral EiC)

Tim Roberts, Pernnsylvania (Secretary General)

Catherine Tallon-Baudry, Paris, France

Douglas Cheyne, Toronto, Canada

Chun Lee Chung, Seoul, Korea Ryan D'Arcy, Vancouver, Canada Eric Halgren, San Diego, USA Jens Haueisen, Jena, Germany Nobukazu Nakasato, Sendai, Japan Selma Supek, Zagreb, Croatia

## IAB EMERITUS

David Cohen, Boston, USA Lueder Deecke, Vienna, Austria Sergio Erne, Jena, Germany Matti Hamalainen, Boston, USA Risto Ilmoniemi, Helsinki, Finland Toivo Katila, Helsinki, Finland Gian Luca Romani, Chieti, Italy Shoogo Ueno, Fukuoka, Japan Harold Weinberg, Burnaby, Canada Chris Wood, Santa Fe, USA Shinya Kuriki, Tokyo, Japan Oliver Bertrand, Lyon, France

# LOCAL ORGANISING COMMITTEE

Gareth Barnes, University College London

Matthew Brookes, University of Nottingham (Co-Chair of Biomag 2022)

Paul Furlong, Aston University, Birmingham

Olaf Hauk, Cambridge University

Rik Henson, Cambridge University

Ole Jensen, University of Birmingham (Chair of Biomag 2022)

Kia Nobre, Oxford University

Hyojin Park, University of Birmingham

Girijesh Prasad, Ulster University

Krish Singh, Cardiff University

Peter Uhlhaas, Glasgow University

Caroline Witton, Aston University, Birmingham (Co-Chair of Biomag 2022)

Mark Woolrich, Oxford University



# SCIENTIFIC COMMITTEE

Sylvain Baillet, McGill University, Canada

Gareth Barnes, University College London, UK

Susan Bowyer, Henry Ford Hospital, USA

Matthew Brookes, University of Nottingham, UK

Douglas Cheyne, University of Toronto, Canada

Chun Kee Chung, Seoul National University, South Korea

Nathalie George, Sorbonne University, France

Joachim Gross, University of Münster, Germany (Chair of Scientific Committee 2022)

Saskia Haegnens,Columbia University, New York, USA

Matti Hämäläinen, Harvard Medical School and Massachusetts General Hospital, USA

Ole Jensen, University of Birmingham, UK

Karim Jerbi, University of Montreal, Canada

Blake Johnson, Macquarie University, Australia

Stephanie Jones, Brown University, USA

Svenja Knappe, University of Colorado, USA

Vladimir Litvak, University College London, UK Srikantan Nagarajan, University of California, San Francisco, USA

Nobukazu Nakasato, Tohoku University, Japan

Satu Palva, University of Helsinki, University of Glasgow, UK

Lauri Parkkonen, Aalto University, Finland

Timothy Roberts, University of Pennsylvania, USA

Gian Luca Romani, G. d'Annunzio University of Chieti-Pescara, Italy

Riitta Salmelin, Aalto University, Finland

Krish Singh, Cardiff University, UK

Julia Stephen, The Mind Research Network, USA

Catherine Tallon-Baudry, École Normale Supérieure, France

Margot Taylor, University of Toronto, Canada

Lutz Trahms, Physikalisch-Technische Bundesanstalt, Germany

Virginie Van Wassenhove, Université Paris-Saclay, France

Caroline Witton, Aston University, UK

## **AWARDS COMMITTEE**

Olaf Hauk, University of Cambridge, UK (Chair of Awards Committee 2022)

Caroline Witton, Aston University, UK (Co-chair of Awards Committee 2022)

Sarang Dalal, Aarhus University, Denmark

Laura Marzetti, University "G. d'Annunzio" of Chieti-Pescara, Italy

Huan Luo, Peking University, China

Tiina Parviainen, University of Jyväskylä, Finland

Sheraz Khan, Harvard University, USA

Masao Matsuhashi, Kyoto University, Japan

Hongfang Wang, Aston University, UK

Girijesh Prasad, Ulster University, UK

Blake Johnson, Mcquarie University, Australia

Johanna Zumer, Aston University, UK

Ratko Magjarevic, University of Zagreb, Croatia

# Edgbaston Campus Map

Green Heart Marquee Exhibition, Catering Main hall and breakout rooms The Harding Building Frankland Building Law Building and registration RO RZ Ř

The Guild of Students

University House

Beech House Cedar House

05 07

Ash House

St Francis Hall

04

> Aston Webb – Lapworth Museum Aston Webb – Student Hub Aston Webb – Great Hall Aston Webb – B Block Medical Physics Hills Building Physics West Physics East Nuffield R9 R10 R11 R3 R5 R6 R7 R8

European Research Institute

32 Pritchatts Road 31 Pritchatts Road

Sport & Fitness

- Bramall Music Building Poynting Building R12 R13
- Barber Institute of Fine Arts R14
  - Watson Building R15
- Ashley Building Arts Building R16 R17

54 Pritchatts Road – Institute for

Global Innovation

Maples Nursery G13 Hornton Grange

9

IRC Net Shape Laboratory Metallurgy and Materials

Computer Centre

3 Elms Road

Gisbert Kapp Building

52 Pritchatts Road

G9 G10

Winterbourne House and Garden

G12

- Strathcona Building Education Building R19 R18
  - R20 J G Smith Building R21 Muirhead Tower
    - R23 University Centre Staff House R24

G16 Lucas House

G18

Westmere Priorsfield

G15

Garth House

G14

- R27 Biosciences Building R26 Geography
- R29 The Alan Walters Building Murray Learning Centre R28

G20 Wolfson Advanced Glasshouses

Park House

G19

G24 Centre for Human Brain Health

G25 EcoLab

and Conference Centre

Edgbaston Park Hotel

G23

G22 Elms Day Nursery

- R31 Collaborative Teaching Laboratory R30 Main Library
  - R32 Teaching and Learning Building R33 Fry Building R34 Cuore
- Medical School B1 B2
- Institute of Biomedical Research
- Wellcome Clinical Research Facility including IBR West

  - Robert Aitken Institute for
  - **Clinical Research** B3
- **CRUK Institute for Cancer Studies** BS

The School of Engineering

Grounds and Gardens

5

Maintenance Building

Engineering Building

**Ferrace Huts** 

Estates West

Ś γ

Haworth Building

2

The Old Gym

Σ r 44

- and Denis Howell Building Research Park

  - 90 Vincent Drive B6 B7 B8
- Henry Wellcome Building for

Chemical Engineering Workshop

Y13

**Biochemical Engineering** 

Chemical Engineering

Computer Science

65 5 Y12 Υ14

8

Civil Engineering Laboratories

Y15 Y16

Rehabilitation Sciences

Sport, Exercise and

Institute of Occupational and

Environmental Medicine

- Biomolecular NMR Spectroscopy
- Medical Practice and Dental Centre Advanced Therapies Facility B9 B10

  - Health Sciences Research Centre **BioHub Birmingham** B11 B12

(HSRC)

- Bournbrook Student Accommodation Public Health <u></u>Ч18 Y17 UNIVERSITY
  - Y19 NBIF

  - Y20 UKRRIN

BIRMINGHAM

- G17 KING EDWARD'S SCHOOL • L 3 K3 🔽 -6 Ċ, • Grange Road Gate 3 18 D + Automated External De fibrillat Electric Vehicle Charge Point Winterbourne House and Garden (G12) Controlled Access Barrier Average walk time from Chancello r's Court Changing place facilities Lapworth Museum Barber Institute of Fine Arts (R14) of Geology (R4) Bramall Music Building (R12) Dog spending pen Blue Badge holder 24 hour security n development nformation poin-Visitors car park Shuttle bus stop: Y2 Building name Canal bridge Bus stops Sport facili Sculpture . Hospital First aid -ibrary Steps ATM Rail Ľ. ₩ ♥ ₽ 6 K ÷ **F N**









# CONFERENCE PROGRAMME

# SATURDAY

17.00 - 22.00	Workshop on Optically-Pumped Magnetometers (WOPM) and dinner	Edgbaston Park Hotel
------------------	--	-------------------------

# SUNDAY 28 AUG

09.00 - 17.00	Satellite Meetings Workshop on Optically- Pumped Magnetometers - WOPM	Algorithms in Biomagnetism	Hands-on Workshop on Human Neocortical Neurosolver	Edgbaston Park Hotel
	Connecting to the networks of the human brain		European MEG Society one-day satellite workshop	
17.00 - 18.30	- Opening Ceremony and reception, Great Hall (in person only) Opening address: Paul Furlong, Emeritus Professor of Clinical Neuroimaging, President for the Association of Neurophysiological Scientists		Great Hall	



# CONFERENCE PROGRAMME

# MONDAY 29 AUG

09.00 - 11.00	- In-person Registration, exhibition, and poster viewing (hybrid)			Green Heart Marquee
09.00 - 11.00	WOPM sessions (hybrid)			Great Hall
11.00 - 11.15	<ul> <li>Welcome address (hybrid)</li> <li>Professor Ed Wilding, Head of the School of Psychology, College of Life &amp;</li> <li>Environmental Sciences, University of Birmingham, and Prof. Ole Jensen, Centre for</li> <li>Human Brain Health, University of Birmingham and Biomag 2022 Chair</li> </ul>			Great Hall
11.15 - 12.15	<ul> <li>Keynote:</li> <li>Neural Dynamics of the Primate Attention Network. Professor Sabine Kastner</li> </ul>			
12.15 - 13.15	5 - Oral poster presentations (hybrid)			
12.15 - 13.15	5 - Poster session (virtual only) 5			Online
13.15 - 14.15	5 - Lunch and exhibition viewing 5			Green Heart Marquee
14.15 - 16.15	Symposium 1: Great Hall Advances and applications in the field of dynamic functional connectivity (hybrid)	Symposium 2: C-block LT Biomagnetic Imaging in Dementia (hybrid)	Symposium 3 (hybrid): Bramall Optically Pumped Magnetometers for Magnetoencephalography	
16.15 - 17.30	5 - Poster session with refreshments - (in person only)			Green Heart Marquee
16.15 - 17.30	5 - Virtual exhibition 0			Online
17.00 - 18.00	) - Data analysis competitions: results and discussion		C-block Lecture Theatre	

# TUESDAY

08.15	Morning refreshments (in-person only)		Green Heart Marquee	
08.45 - 10.45	Symposium 4: Great Hall Rhythms in Auditory, Visual, and Audiovisual Speech Processing: Multisensory representations in unisensory cortices and beyond (hybrid)	Symposium 5: Bramall Recent advances in biomagnetic applications of optically pumped magnetometers beyond MEG (hybrid)	C-block LT Early Career Researchers Award Presentations (hybrid)	
10.45 - 11.30	Refreshment break, exhibition	n and poster viewing (hybrid)		Green Heart Marquee
11.30 - 12.30	- Keynote: Professor Stan Dehaene			Great Hall
12.30 - 13.30	) - Oral poster presentations (hybrid)			Great Hall
12.30 - 13.30	) - Poster session (virtual only)			Green Heart Marquee
13.30 - 14.30	D - Lunch, exhibition viewing and poster viewing (hybrid)			Green Heart Marquee
13.30 - 15.30	0 - International Advisory Board meeting (IAB only - hybrid) 0			Rose Sedgewick
14.30 - 15.30	0 - Poster session (in person only) and Virtual exhibition time			Green Heart Marquee
14.30 - 15.30	0 - Virtual exhibition time 0			Online
15.30 - 16.00	0 - Refreshment break, exhibition and poster viewing (hybrid) 0			Green Heart Marquee
16.00 - 18.00	Symposium 6: Bramall How can we study social cognition in the MEG lab? The tug-of-war between experimental control and ecological validity (hybrid) deep brain recordings (hybrid)	Symposium 7: C-block LT Magnetocardiography (hybrid)	Symposium 8: Great Hall New insights from animal and human studies into the functional role of sensorimotor beta burst dynamics (hybrid)	
19.00 - 22.00	0 - Aston University social event		Aston University	



# **CONFERENCE PROGRAMME**

### WEDNESDAY

### **31 AUG**

08.15	Morning refreshments		Green Heart Marquee	
08.45 - 10.45	Symposium 9: Great Hall Time-resolved cortico- subcortical connectivity in patients with deep brain recordings (hybrid)	Symposium 10: Bramall Symposium 10: Multivariate methods to disclose brain networks in multiple functional neuroimaging modalities (hybrid)	Symposium 11: C-block LT Applications of MEG in Psychiatry: The Past, Present and the Future (hybrid)	
10.45 - 11.30	Refreshment break, exhib	ition and poster viewing (hybrid)		Green Heart Marquee
11.30 - 12.30	<mark>Keynote:</mark> Prof. Margot Taylor			Great Hall
12.30 - 13.30	Oral poster presentations	(hybrid)		Green Heart Marquee
12.30 - 13.30	- Poster session (virtual only)			Online
13.30 - 14.30	) - Lunch, exhibition viewing and poster viewing (hybrid)			Green Heart Marquee
14.30 - 15.30	- Poster session (in person only)			
14.30 - 15.30	D - Virtual exhibition time		Online	
15.30 - 16.00	- Refreshment break, exhibition and poster viewing (hybrid)		Green Heart Marquee	
16.00 - 18.00	Symposium 12: Great Hall Infant MEG: Examining normal and abnormal brain development (hybrid)	Symposium 13: Bramall Oscillations and memory: From local to large-scale synchronization, from working memory to long-term memory, from correlation to causation (hybrid)	Symposium 14: C-block LT Contribution of MEG, EEG and TES to the pre- surgical diagnosis and treatment of epilepsy (hybrid)	
19.00 - 23.00	- Conference social event (in-person only)		Custard Factory	

# THURSDAY

08.15	Morning refreshments		Green Heart Marquee	
08.45 - 10.45	Symposium 15: Great Hall The pathophysiology of mild Traumatic Brain Injury (hybrid)	Symposium 16: Bramall Insights into the laminar basis of neural oscillations: multimodal and multi- species approaches (hybrid)	Symposium 17: C-block LT Tracking neural development of cognitive functions (hybrid)	
10.45 - 11.30	Refreshment break and exhibition viewing (hybrid)			Green Heart Marquee
11.30 - 12.30	Town Hall (hybrid)			Great Hall
12.30 - 13.30	Keynote: Professor Mark Woolrich			

13.30 - 14.15	Lunch and exhibition viewing (hybrid - exhibition closes after lunch)		Green Heart Marquee
14.15 - 15.45	Symposium 18: Great Hall Open source and the MEG community: advancing science together (hybrid)	Symposium 19: Bramall Predicting clinical endpoints from M/EEG: Challenges and opportunities of large- scale data analysis (hybrid)	
15.45 - 16.00	- Closing remarks		Great Hall
16.00	Conference closes		





#### Sabine Kastner,

Professor of Psychology, Princeton Neuroscience Institute, Princeton University

Sabine Kastner is a Professor of Neuroscience and Psychology at Princeton University. She studies the neural basis of visual perception, attention, and awareness in the healthy, adult primate brain, in patients with brain lesions and during development. Kastner is a Fellow of the American Academy of Arts & Sciences, the American Psychological Society, the Society for Experimental Psychology and a Member of the German National Academy of Sciences (Leopoldina). Kastner is passionate about public outreach such as fostering the careers of young women in science, promoting neuroscience in schools and public education and exploring the intersection of visual neuroscience and art.

### Neural Dynamics of the Primate Attention Network

The selection of information from cluttered sensory environments is one of the most fundamental cognitive operations performed by the primate brain. This process engages a large-scale network that consists of multiple nodes, distributed across cortical and subcortical regions. The lecture will focus on temporal dynamics within this network that shape both the sampling of and responses to our environment, with an emphasis on thalamocortical interactions. The lecture will also discuss the importance of comparative electrophysiology and neuroimaging in human and monkey brains.



#### Stan Dehaene,

Professor, Experiential Cognitive Psychology, College De France

Stanislas Dehaene, PhD, is a French psychologist and cognitive neuroscientist. He holds the Chair of Experimental Cognitive Psychology at the Collége de France in Paris. He directs the NeuroSpin center in Saclay, south of Paris, France's advanced brain imaging research center. His research investigates the neural bases of human cognitive functions such as reading, calculation and language, with a particular interest for the differences between conscious and non-conscious processing, and for the impact of education on the brain. Prof. Dehaene is a member of six academies and a recipient of the Brain Prize. In 2018, he became the president of the newly created French Scientific Council for Education, which advises the French government on scientific approaches to learning and teaching. He is the author of multiple books including Reading in the Brain: The Science and Evolution of a Human Invention (2009) and How We Learn: Why Brains Learn Better Than Any Machine...For Now (2020), which were translated into more than fifteen languages.

### Tracking mental languages with magnetoencephalography

Natural language is often seen as the single factor that explains the cognitive singularity of the human species. Instead, we propose that humans possess multiple internal languages of thought, akin to computer languages, which encode and compress structures in various domains (mathematics, music, shape...). These languages rely on cortical circuits distinct from classical language areas. Each is characterized by (1) the discretization of a domain using a small set of symbols, and (2) their recursive composition into mental programs that encode nested repetitions with variations. I will present several tasks of elementary shape or sequence perception in which minimum description length in the proposed languages demonstrably captures human behaviour and brain activity, and where magneto-encephalography tracks the postulated mental structures in real time.





**Dr Margot J. Taylor,** Director of Functional Neuroimaging, Hospital for Sick Children and Professor, University of Toronto

Dr. Taylor is the Director of Functional Neuroimaging and Senior Scientist at the Hospital for Sick Children and Professor in Medical Imaging and Psychology at the University of Toronto. Dr. Taylor's research has centred on the neural bases of socialcognitive development using MEG, fMRI and MRI. She and her team assess functional and structural brain correlates of high-level cognitive skills from early childhood into adulthood, in typically developing, autistic and very preterm-born populations. Her current focus is the application of OPMs to investigate emerging neural signatures of autism in toddlers.

# MEG over time: brain function over the years, the lifespan and across disorders

Understanding brain functioning across the age spectrum is fundamental to advancing our knowledge on both typical and atypical development. In this presentation, I will review some of our studies using MEG throughout development, determining source, connectivity and oscillatory differences between typical development and children and adults with autism or children born very preterm. The protocols include a range of social-cognitive tasks, such as emotional processing, theory of mind and working memory, which have protracted development normally and show deficits in these clinical populations.



**Prof Mark Woolrich,** Professor of Computational Neuroscience, Oxford Centre for Human Brain Activity (OHBA), University of Oxford

Mark Woolrich is a Professor of Computational Neuroscience at the University of Oxford, Head of Analysis and Associate Director at the Oxford centre for Human Brain Activity (OHBA), and a Group Leader in the Wellcome Centre for Integrative Neuroimaging (WIN). His background is in engineering science and his early research career was in fMRI analysis, through which he became a key contributor to FSL. His research now focuses on the development of new computational methods for analysing neuroimaging data, including functional MRI and MEG/EEG data; allowing novel questions to be asked about the function and dysfunction of the human brain.

### Dynamic Brain Networks and Machine Learning in MEG

This talk will describe how machine learning methods can be used to infer the dynamics of large-scale networks at sub-second timescales from MEG data. This can be used to describe the dynamics of large-scale phase locking networks in rest and task, to infer transient spectral events (e.g. beta bursts), and to provide a link between phenomena such as replay and the activity of resting state networks. The talk will finish with a look at new deep-learning-based approaches, which are offering exciting new possibilities for the future.





# Exploring the robustness of the MEG functional neural network in patients with dementia due to Alzheimer's disease

Marcos Revilla-Vallejo<sup>1,2</sup>, Carlos Gómez<sup>1,2</sup>, Javier Gomez-Pilar<sup>1,2</sup>, Pablo Nuñez<sup>1,2</sup>, Víctor Rodríguez-González<sup>1,2</sup>, Hideyuki Hoshi<sup>3,4</sup>, Yoshihito Shigihara<sup>3</sup>, Roberto Hornero<sup>1,2,5</sup>, Jesús Poza<sup>1,2,5</sup>

<sup>1</sup>Biomedical Engineering Group, University of Valladolid, Valladolid, Spain.

<sup>2</sup>Centro de Investigación Biomédica en Red en Bioingeniería, Biomateriales y Nanomedicina (CIBER-BBN), Madrid, Spain.
 <sup>3</sup>Precision Medicine Centre, Hokuto Hospital, Japan, Japan.

<sup>4</sup>Medical Imaging Business Centre, Healthcare Business Group, RICOH Company, Ltd., Japan, Japan.

<sup>5</sup>Instituto de Investigación en Matemáticas (IMUVA), University of Valladolid, Valladolid, Spain

#### Background.

Dementia due to Alzheimer's disease (AD) is associated with various alterations in the functional brain network, whose properties are usually summarised in strongly correlated measures. Given the characteristic progressive neural deterioration induced by AD, determining the robustness of the neural network in these patients could be a key biomarker to help in the disease diagnosis. The purpose of this study was to quantify the alterations that AD continuum elicits in the robustness of the functional neural network theory.

#### Methods.

Magnetoencephalographic (MEG) source-level data from cognitive healthy controls, individuals with mild cognitive impairment (MCI) and patients with dementia due to AD were analysed using leakage-corrected amplitude envelope correlation (AEC). Afterwards, the robustness of the network was estimated using the weighted efficiency measure from complex network theory and under two node attack models (i.e., degree-based node removal and random node removal).

#### Results.

Weighted efficiency shows that the MEG functional network suffers from a gradual alteration throughout dementia progression for both of the assessed models.

#### Discussion.

The significant changes on the functional network structure associated with the AD progression are reflected in a loss of network robustness. This finding supports the notion that altered networks in patients with MCI and AD are more sensitive or resilient to network failures than those of cognitive healthy controls.

#### Wednesday 31 August: 19.00 - 23.00: Main conference social event

Tickets are required to join this event. If you haven't purchased one but would like to attend, please check with the team at the registrations desk to see if there are any available.

Tickets include a street food feat and complimentary drinks. A bar will also be open to purchase additional drinks.

This will take place at the Custard Factory, Gibb Street, Digbeth, B9 4AA.

Please note that there will be coaches taking attendees to the venue from the University of Birmingham and returning to the campus. Further details will be provided during the event.

We have also listed local restaurants and activities on the website. (link to <a href="https://biomag2020.org/">https://biomag2020.org/</a>)

#### THANK YOU TO THE BELOW SPONSORS FOR **SUPPORTING BIOMAG 2022**

You can find them in the Green Heart Marquee, along with a presence on the virtual event platform

# GOLD MEGIN

#### SILVER









MEDICAL



#### BRONZE



**UNIVERSITY**OF BIRMINGHAM

BESA

