

ESPOO  
2024

# ICBEM

15th International Conference on Bioelectromagnetism

Finland, May 29 to 31, 2024

Organized by

**A?**

Aalto University



ISBEM

In collaboration with

Aalto Brain Center |  
Aalto Science Institute



Federation of Finnish  
Learned Societies

**Bittium Nexstim**

**Cephalon**  
Your Neuro Partner

**VISIT ESPOO**

# Program

## WEDNESDAY 29<sup>TH</sup>

Session	Time	Presentation title	Speaker
	8:30	<b>Registration</b>	
	9:30	<b>Opening</b>	<b>Risto Ilmoniemi and Matti Stenroos</b> (Aalto University)
S1	9:45	50 years research on biomagnetism	Jaakko Malmivuo (Founder of ISBEM)
	10:20	Coffee break	
S2	10:45	<b>Keynote presentation</b> <b>Sources of Bioelectric and Biomagnetic Fields</b>	<b>Matti Stenroos</b> (Aalto University)
	12:00	Partner presentation: Cephalon	Tommi Hälli
	12:15	Lunch	
	13:15	Posters	
S3	14:00	<b>Keynote presentation</b> <b>High-resolution magnetoencephalography</b>	<b>Lauri Parkkonen</b> (Aalto University)
	15:00	Partner presentation: Bittium	Simo-Pekka Simonaho and Jukka Kinnunen
	15:15	Coffee break	
	15:30	Combined magnetic resonance imaging and magnetoencephalography system and adding ultrasound	Koos Zevenhoven (Aalto University)
	15:50	Influence of Anisotropic Muscle Conductivity on the Activation Threshold of the Phrenic Nerve	Laureen Wegert (TU Ilmenau)
S4	16:10	OPM-MEG: What can we learn from 1000 sensors?	Svenja Knappe (FieldLine & University of Colorado)
	16:30	InVesalius-mTMS: neuronavigation with robotics, tractography and electric field modeling	Victor H. Souza (Aalto University)
	16:50	Investigation of TMS neuronavigation accuracy using structured-light 3D scanning	Noora Matilainen (Aalto University)
	17:10	<b>End of academic program</b>	
	17:45	Bus transport Löyly	
	18:30	Get-together & Networking: Finnish Sauna evening at Löyly 18.30-20.30	

THURSDAY 30<sup>TH</sup>

Session	Time	Presentation title	Speaker
S5	9:00	<b>Keynote presentation</b> <b>Fetal Long QT Syndrome and Stillbirth</b>	<b>Ronald T. Wakai</b> <i>(University of Wisconsin-Madison)</i>
	10:00	Mapping TMS-EEG input-output behavior at M1 and pre-SMA	Ilkka Rissanen <i>(Aalto University)</i>
	10:20	New Electrode Positions for Enhancing Diagnostic Performance through HRV Analysis	Lina Agyekumwaa Asante <i>(Yonsei University)</i>
10:40 Coffee break			
S6	10:55	Electric-field-orientation dependency of TMS-evoked responses	Ida Granö <i>(Aalto University)</i>
	11:15	Real-time EEG noise removal for enhanced brain-state monitoring	Matilda Makkonen <i>(Aalto University)</i>
	11:30	Brain Fingerprinting Correlates of the EEG response to Transcranial Magnetic Stimulation	Domenico Voso <i>(D'Annunzio University of Chieti - Pescara)</i>
	11:50	Mapping FUNctional Connectivity in the Motor and Somatosensory Areas: FUN-mTMS	Giulia Pieramico <i>(D'Annunzio University of Chieti - Pescara)</i>
12:15 Lunch			
13:15 Posters			
S7	14:00	Partner presentation: Nexstim	Henri Hannula
	14:15	Investigation on the effects of electrical vestibular stimulation with frequency-modulated currents	Janita Nissi <i>(Aalto University)</i>
	14:35	Transient burst events in single-trial EEG during photic driving	Hannes Oppermann <i>(TU Ilmenau)</i>
	14:55	Noninvasive recording of thalamic sensory and motor signatures (13-2000 Hz) in healthy adults	Silvia L. Isabella <i>(University of Rome and San Camillo IRCCS Research Hospital)</i>
15:15 Coffee break			
S8	15:30	Multimodal impedance tomography provides a tool for assessing 3D in vitro samples	Mari Lehti-Polojärvi <i>(Tampere University)</i>
	15:50	Data-driven in-vivo conductivity imaging using 2.5D patch-to-point non-linear estimator in 3T MRI	Chan-Hee Park <i>(Yonsei University)</i>
	16:10	Exploring the relationship between in-vivo conductivity changes using SE-EPI and bSSFP versus functional MRI at 3T	Kyu-Jin Jung <i>(Yonsei University)</i>
	16:30	Optimization of M/EEG spatial filters for extraction of ROI time series based on cross-talk function	Nikolai Kapralov <i>(Max Planck Institute for Human Cognitive and Brain Sciences)</i>
16:45 <b>End of academic program</b>			
17:00 Walk from Dipoli to Cruise departure			
17:15 Departure boat cruise from Otaranta to Hanasaari			
18:00 Dinner at Swedish-Finnish Cultural Centre			
22:00 Bus transport to City Centre/ Otaniemi			

FRIDAY 31<sup>ST</sup>

Session	Time	Presentation title	Speaker / Organizer
S9	9:00	<b>Keynote presentation</b> <b>Interpreting the mechanisms and meaning of human MEG/EEG signals with the Human Neocortical Neurosolver Software</b>	<b>Stephanie R. Jones</b> (Brown University)
	10:00	Decoding multiple same-hand movement with interpretable neural networks from MEG data	Ivan Zubarev (Aalto University)
	10:20	Optimization of a novel generative model for the estimation of large-scale effective connectivity in MEG	Martina Ferrazza (D'Annunzio University of Chieti – Pescara)
10:40		Coffee break	
S10	10:55	HNN-core: A Python software for cellular and circuit-level interpretation of human MEG/EEG	Nicholas Tolley (Brown University)
	11:15	Practice-induced reductions in Gamma power in Response to Proper Name Anomia Therapy in people with dementia: An MEG Study	Aygun Badalova (University College London)
	11:35	Standardized Kalman Filtering for Time Serial Source Localization of Simultaneous Subcortical and Cortical Brain Activity	Joonas Lahtinen (Tampere University)
	11:55	The effects of peeling on finite element method -based EEG source reconstruction	Santtu Söderholm (Tampere University)
12:15		Closure/Lunch	
	13:15	<b>Laboratories Open Doors</b> Aalto University campus	Victor H. Souza (Aalto University)
	14:00	<b>Workshop</b> <b>Human Neocortical Neurosolver (HNN) software</b> Otakaari 1, room U257	<b>Stephanie R. Jones</b> (Brown University)

# Poster presentations

Session	Poster title	Presenter
Poster	Examining the 'Atypical Rhythm Risk' Hypothesis in Children with DLD: An EEG Study of Rhythmic Speech	Mahmoud Keshavarzi <i>(University of Cambridge)</i>
	Improvement of Accuracy in Electrocorticogram-Based Speech Synthesis Using Accelerometers	Hongsang Lee <i>(Hanyang University)</i>
	Synthesis of Spoken Words from Low-Density Electroencephalography with a Small Amount of Training Data	Jihun Hwang <i>(Hanyang University)</i>
	Optimal Electrical Brain Stimulation via L1L1 method: Metaheuristic Implementation and application	Sampsa Pursiainen <i>(Tampere University)</i>
	Forearm tissue conductivities from 30Hz to 1MHz: measurements and modelling	Otto Kangasmaa <i>(Aalto University)</i>
	Mindfulness meditation styles differently modulate source-level MEG microstate dynamics and complexity.	Pierpaolo Croce <i>(D'Annunzio University of Chieti – Pescara)</i>
	Repetitive Transcranial Stimulation to Enhance Directional Motor Performance: A Pilot Study	Annamaria Palese <i>(Università Campus Bio Medico di Roma)</i>
	Measuring Auditory Responses in Domestic Cats with Non-Invasive OPM-MEG	Markus Henttonen <i>(Aalto University)</i>
	Closed-loop neurostimulation to mitigate seizures via model-free control	D. Blair Jovellar <i>(University of Tuebingen)</i>
	Conventional and on-scalp measurements of MEG signals from the human cerebellum during self-paced horizontal saccades	Santeri Ruuskanen <i>(Aalto University)</i>
Localization of OPM sensors with large electromagnetic coils	Mikael Grön <i>(Aalto University)</i>	