



6th October 2022

Empathy | Sleep | Sensory-Motor

 Biomedicum 1, Haartmaninkatu 8, 00290 Helsinki

 Online



8:45-9:00 Opening words by Prof. Iiris Hovatta

Neuroscience of empathy

- 9:00** **Dr. Katri Saarikivi**
Exploring empathy and inter-brain synchronization during virtual and face-to-face collaboration
- 9:25** **Prof. Grit Hein**
Insights into the plasticity of the empathic brain
- 10:10** **Prof. Christian Keysers**
A cross-species perspective on empathy and prosocial behavior

10:55-11:00 Break

Industry Talks

- 11:00** **Mateusz Dudek, Charles River Laboratories, Finland**
Charles River Laboratories as a research partner for pharmaceutical, biotechnology, agrochemical, government, and academic organizations
- 11:20** **Anni Laari, Nordic BioSite**
Nordic BioSite - By Your Side™ in Life Science Research
- 11:30** **Markku Saari, Immuno Diagnostics Oy**
Expand Your Neuro Research with Leica Microsystems Solutions
- 11:40** **Outi Kontkanen, Admescope Ltd**
ADME in Drug development – Admescope Overview

12:00-13:45 Lunch break + Poster session + Industry stands

Sleep

- 13:45** **Dr. Rhiannan Williams**
Sleep as a window into circuit activation and neural networks
- 14:40** **Dr. Christelle Peyron**
Translational research to understand pathophysiology of narcolepsy type 1 /
Pathophysiology of narcolepsy type 1, a rare neurological disease

15:35-16:00 Coffee break

Sensorimotor system

- 16:00** **Prof. Andrea Serino**
Peripersonal space (PPS) as a primary interface for self- environment interactions
- 16:40** **Prof. Florent Lebon**
Learning via motor imagery: behavioral and neurophysiological proofs
- 17:20** **Prof. / Asst. Prof. Mathieu Bourguignon**
Brain-peripheral couplings: temporal dynamics and behavioral relevance

18-18:05 Concluding remarks by Prof. Lauri Parkkonen

19-00 Dinner at Sokos Hotel Vaakuna 10th floor



Dr. Katri Saarikivi

University of Helsinki

Katri Saarikivi is a cognitive neuroscientist at the University of Helsinki. Her work examines the neural mechanisms involved in learning, collaboration, empathy and trust, and explores how these mechanisms could be better supported in online environments. Alongside research, she is enthusiastic about popularizing science, and especially about opening the scientific method to people outside academia.



Prof. Grit Hein

University of Würzburg, Translational Social Neuroscience Unit

Grit Hein is a psychologist, neuroscientist, and professor of Translational Social Neuroscience at the University of Würzburg (Germany). Prof. Hein's team investigates how social factors influence human motivation, learning and behavior in health and psychopathology, combining brain imaging, computational modeling, and behavioral experiments. Of particular interest are social motives such as empathy, reciprocity, egoism and collectivism, the interactions between different motives, and their effects on social behavior. Prior to joining the University of Würzburg in 2017, Grit completed Postdoctoral Research Fellowships at UC Berkeley and the University of Zurich and held a position as a lecturer at the University of Bern. For her work, Prof. Hein has received prestigious awards such as the Heisenberg-Professorship of the German Research Foundation.



Prof. Christian Keysers

Social Brain Lab, Netherlands Institute for Neuroscience, KNAW, Amsterdam, The Netherlands. Department of Psychology, Brain and Cognition, University of Amsterdam, Amsterdam, the Netherlands.

Christian Keysers is full professor for Social Neuroscience at the University of Amsterdam and leads, together with Valeria Gazzola, the Social Brain Lab at the Netherlands Institute for Neuroscience. His work combines rodent and human work to understand social behavior and its disfunctions. Highlights of his work include the discovery of auditory mirror neurons in monkeys; the demonstration that humans recruit brain regions involved in their own actions, emotions and sensations while witnessing those of others and that these vicarious activations are reduced in psychopathy. More recently, his lab focuses on rodent models of emotional contagion to study the cellular basis of the mammalian sensitivity to the emotions of others. This led to the discovery that the cingulate, central to human empathy, contains emotional mirror neurons in rats, and that deactivating this region reduces emotional contagion and harm aversion. His work was cited >30'000 times. He is an ERC laureate, member of the Academia Europaea, Fellow of the Association for Psychological Science and authored of the award-winning book *The Empathic Brain*.



Mateusz Dudek

Charles River Laboratories, Finland

I received my Master's Degree from the University of Agriculture in Krakow, Poland in 2011. Shortly after, I started my PhD at the department of Pharmacology, University of Helsinki, in Petri Hyttiä's group. I defended my dissertation titled Functional imaging of neural systems associated with alcohol addiction and amphetamine toxicity in 2016 and received a PhD in medicine degree. During my PhD, I had a pleasure to be a member of the Brain and Mind Graduate School of Neuroscience. A few months later, after finalizing research projects, I moved to Zagreb, Croatia to work for Galapagos company. A year later I moved to Warsaw, Poland, to work for a small startup OncoArendi Therapeutics, and help them with the development of their lead molecules that is currently in Phase II clinical trial. In 2018, I have started my adventure with Charles River Laboratories in Kuopio Finland, where I have been working ever since, with a short brake.



Anni Laari

Nordic Biosite

MSc in molecular biosciences



Markku Saari

Immuno Diagnostic OY

Background in core facility microscopy and biomedical imaging in Turku.



Outi Kontkanen

Admescope Ltd

Dr. Outi Kontkanen, CEO of Admescope organization and a management team member of Symeres, has an extensive global experience in discovery and early preclinical CRO business. Her passion is to harness science for development of effective therapies and for improvement of quality of life. She has served in various managerial and business development roles at Charles River Laboratories and believes in the power of global collaborations. Her scientific background lies in molecular pharmacology where she holds a PhD degree and has contributed to various publications in neuropharmacology and related sciences.



Dr. Rhiannan Williams

Helmholtz Zentrum München

Rhiannan received her PhD from the University of Manchester in 2009. Since then she has been fortunate to undertake postdoctoral positions in world-renowned research laboratories at the University of Cambridge, Harvard Medical School, and SRI International. These opportunities have afforded her expertise in a variety of techniques and the ability to present her findings at International conferences. In 2017, as a recipient of an ERC starting grant, Rhiannan established her independent research laboratory-NAPS lab- at the Institute of Neurogenomics at the Helmholtz Centre, Munich. NAPS lab focusses on integrative research of astrocytic and neuronal interactions underlying sleep physiology. Rhiannan has been fortuitous to partner with numerous excellent collaborators throughout her career. Recently, she pursued a change in career path, applying electrophysiology to the question of Neuropsychiatry at Boehringer Ingelheim.



Dr. Christelle Peyron

Lyon Neuroscience Research Centre

Christelle Peyron is a neuroscientist, director of research at the center for research in neuroscience of Lyon (CRNL), University of Lyon1 in France. She is the co-leader of the SLEEP lab at the CRNL and the leader of the research group on narcolepsy. She participated to the discovery of the hypocretins neuropeptides (also called orexins) while a post-doctoral fellow with TS Kilduff at Stanford university (California), then showed that hypocretin neuropeptides are missing in narcoleptic patients while a post-doc with Emmanuel Mignot (Stanford university, California). She received the 1997 and 1998 young scientist awards from the American Association of Sleep Medicine and the 2000 price of excellence for young scientists from the Sleep Research Society (USA). Her current research in Lyon (France) focuses on narcolepsy, studying the consequences of the missing hypocretins on the pathophysiology of sleep as well as the cause of their disappearance. She has developed several animal models to study the pathology. Christelle Peyron has published > 60 international peer reviewed articles and 8 book chapters. She has served as member of the scientific committee of the European Sleep Research Society (2008-2012) and of the French society for sleep research and sleep medicine (2017-2021). She is now chair of the scientific committee of the European narcolepsy network.



Prof. Andrea Serino

**Department Clinical Neurosciences, University Hospital Lausanne (CHUV).
Laboratory of Cognitive Neuroscience, Center for Neuroprosthetics, Ecole
Polytechnique Fédérale de Lausanne**

Andrea Serino, Prof, PhD is currently SNSF Professor at the University Hospital of Lausanne, where he directs the MySpace Lab, Invited Professor at the Center for Neuroprosthetics of the EPFL and Neuroscientific Consultant for MindMaze SA. Lausanne. His main research topic is understanding the neural basis of self-experience in space. To this aim, he has used multiple experimental techniques, in healthy volunteers and in brain damaged patients, including psychophysics, non-invasive brain stimulation, fMRI, EEG and neural network modelling. Currently, he is working on how to apply such knowledge to develop virtual reality applications for neurological disease. He has published over 120 papers in international peer-reviewed journals. such as Neuron, Current Biology, Stroke, Brain.



Prof. Florent Lebon

University of Burgundy

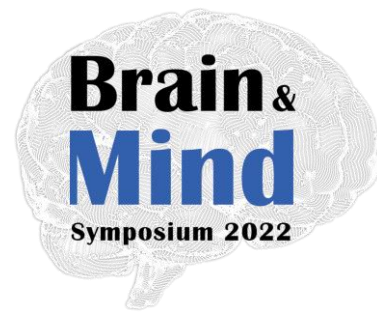
I'm currently an associate professor at the Sport Science Faculty of the Université de Bourgogne (Dijon). My research projects encompass behavioral psychology and cognitive neuroscience. The main goal is to understand the link between neural processes underlying motion (movement preparation, mental simulation, action language). Ongoing works include the development of non-pharmacological interventions, such as mental practice or non-invasive brain stimulation, for motor learning and rehabilitation of pathologies implying the sensorimotor system. I did my PhD in Lyon, then 2 post-docs: one in New Zealand (University of Auckland) and one in California (University of Berkeley), before being recruited in Dijon.



Prof. / Asst. Prof. Mathieu Bourguignon

Laboratory of Neurophysiology and Movement Biomechanics & Laboratoire de Neuroimagerie et Neuroanatomie translationnelles, UNI – ULB Neuroscience Institute, Université libre de Bruxelles (ULB), Brussels, Belgium. BCBL, Basque Center on Cognition, Brain and Language, 20009 San Sebastian, Spain.

Mathieu Bourguignon graduated as a physics engineer at the Université Libre de Bruxelles (ULB, Belgium) in 2008. He completed a PhD thesis in the field of sensorimotor neuroscience in March 2013 at the ULB and in tight collaboration researchers from Aalto University (Finland). He is now an assistant professor at the ULB. His research is essentially organized along two lines, trying to better understand the brain mechanisms underlying 1) sensorimotor control and 2) speech processing. To that aim, he mainly use non-invasive electrophysiological recording techniques such as electroencephalography (EEG) and magnetoencephalography (MEG) to record human brain activity, in conjunction with a wide range of signal analysis methods.



Poster presenters

Marta Saez Garcia

Long-term endoscopic calcium imaging of a novel compression TBI mouse model

Niloufar Zebarjadi

Political Ideology and Empathy to Vicarious Suffering: An MEG Study

Niloufar Zebarjadi

Rhythmic Neural Patterns During Empathy to Vicarious Pain: Beyond the Affective-Cognitive Empathy Dichotomy

Judith Sattelberger

Interhemispheric interaction in visual working memory retention

Nadine Herzog

working memory gating in obesity

Anni Varjonen

Case-control co-twin study on the associations of dementia risk factors with episodic memory in nonagenarians

David Micinski

Formin-mediated actin filament regulation in the axon initial segment of hippocampal neurons

Piia Haakana

Earlobe electrical stimulation enhances the effect of paired associative stimulation more than auricular vagus nerve stimulation

Simo Ojanen

GluK1-containing kainate receptors and synchronous activity in the hippocampus

Anniina Tervi

Genetic determinants of chronic fatigue syndrome

Ying Chieh Wu

APP Swedish mutant iPSC-derived model reveal the contribution of pericyte to Alzheimer's disease pathology

Noora Räsänen

Complex network-level activity in human iPSC-derived neuron-astrocyte co-cultures

Mikael Grön

Measurement and characterisation of human visual gamma-band responses with on-scalp magnetoencephalography

Juan Camilo Avendano Diaz

Two-person neuroscience with MEG hyperscanning: Decoding interaction mode from two-brain data

Liya Merzon

Assessing Attention Deficits in a Naturalistic VR Task

Giuliano Didio

Neural plasticity in Somatostatin-expressing interneurons to suppress cocaine-conditioning

Merlin Dumeur

Multifractal characterization of the critical Landau-Ginzburg theory for cortex dynamics

Adrien Gigliotta

An in vitro stress model of primary oligodendrocytes from anxious and non-anxious inbred mouse strains

Zoia Kharybina

Is the whole brain critical?

Reetta Ojala

A transient beta oscillation occurs with high temporal regularity prior to stopping an ongoing movement

Laura Mustonen

Migraine and persistent post-surgical pain in breast cancer survivors

Hanna Julku

Science Capital is Related to Understanding Probability, Randomness, and Scientific Method

Daniel Fängström

Investigating the association between a high-fat and high-sugar diet and neuromelanin concentration using quantitative susceptibility mapping

Heta Helakari

Recovery sleep after sleep deprivation intensifies vasomotor pulsations in the brain more than natural sleep

Rakenduvadhana Srinivasan

Acute neuroinflammation disrupts dentate gyrus gating function in mice

Siiri Rissanen

Modeling endothelial barriers: approaching in-vivo BBB permeabilities with engineered blood-brain barrier-on-chip

Dmitrii Vasilev

Distinct anterior cingulate neurons drive changes-of-mind and monitor past performance

Karo Talvio

Transcriptome analysis reveals cholinergic signalling abnormalities in early neural progenitors modelling fragile X syndrome

Annika Kluge

Ideological asymmetries of implicit bias on the level of neural oscillations



Brain & Mind Student Council 2022

Annina Tervi (University of Helsinki, Ollila group)

Mila Nurminen (Aalto University, Neuroimaging methods group)

Annika Kluge (Aalto University, Empathy Building Neuro-lab)

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