The 10th World Mismatch Negativity Conference

(MMN2024)

	Tuesday 17th	Wednesday 18th		Thursday 19th	
8:45-9:00	opening ceremony				
9:00-10:00	*keynote#1 Csépe*	*Keynote #2 Hamm*		*Keynote #3 Schröger*	
10:00-11:30	*SYMP #1 Englitz & Barkat*	*SYMP #5 Ayala & Eliades*		*SYMP #10 Jacobsen & Ylinen*	
11:30-12:00	*coffee break*	*coffee break*		*coffee break*	
12:00-13:30	*SYMP #2 Winkler*	*SYMP #6 Calcus & Uhler*	*SYMP #7 Kreegipuu*	*SYMP #11 Salisbury*	*SYMP #12 Blankenburg & von der Behrens*
13:30-15:00	Lunch/POSTERS	Lunch/POSTERS		Lunch/POSTERS	
15:00-16:30	*SYMP #3 Zatorre & Coffey*	*SYMP #8 Faes & Enan*		*SYMP #13 Yabe*	
16:30-16:45	*coffee break*	*coffee break*		*SPECIAL TRIBUTE SYMP RISTO NÄÄTÄNEN* *CLOSING REMARKS*	
16:45-18:15	*SYMP #4 Alain*	*SYMP #9 Bidet-Caulet & Caclin*			

20:00-22:30	*Welcoming dinner PALACIO DE FIGUEROA*	*Self organize*	*Farewell banquet HACIENDA ZORITA*

*All presenting authors are highlighted in blue

Day 1 Tuesday 17th, September 2024

8:45 - 9:00 Opening ceremony

9:00-10:00 Keynote

"The many faces of MMN"

Lecturer: Valeria Csépe

HUN-REN RCNS, Brain Imaging Centre and

Hungarian Academy of Sciences. Hungary

09:00-10:30 Symposium 1

New Insight into the Physiological Basis of Predictive Processing.

Chairperson: Bernhard Englitz[1] and Tania Rinaldi Barkat[2]

1. Department of Computational Neuroscience Laboratory. Department of Neurophysiology. Donders Centre of Neuroscience. Nijmegen, The Netherlands.
2. Department of Biomedicine of the University of Basel. Switzerland

Talk 1: Cortical neuronal circuits for adaptation

Maria Geffen.

University of Pennsylvania. USA

Talk 2: Sequential maturation of deviance detection in the mouse central auditory system.

Tania Rinaldi Barkat.

Department of Biomedicine of the University of Basel. Switzerland

Talk 3: The representation of mismatch responses across the auditory cortex of mice.

Bernhard Englitz.

Computational Neuroscience Laboratory. Department of Neurophysiology. Donders Centre of Neuroscience. Nijmegen, The Netherlands.

Talk 4: Temporal prediction as a sensory processing principle.

Nicol Harper.

Department of Physiology, Anatomy and Genetics. University of Oxford. UK

12:00-13:30 Symposium 2

Prediction permeates sound processing in the human brain.

Chairperson: **István Winkler.**
HUN-REN Institute of Cognitive Neuroscience and Psychology, Research Centre for Natural Sciences, Hungary

Talk 1: Auditory streams in perception – source and action representations in cognition.
István Winkler[1] and Susan L. Denham[2].
1. HUN-REN Institute of Cognitive Neuroscience and Psychology, Research Centre for Natural Sciences, Hungary
2. Faculty of Science and Technology, Bournemouth University, Poole, UK

Talk 2: What does different temporal sensitivity teach us about the tracking of pattern repetitions and deviations?
Juanita Todd.
Newcastle University. Australia

Talk 3: Is the auditory system a "smart" statistical learner?
Maria Chait.
Ear Institute. Institute of Cognitive Neuroscience. University of London. UK

Talk 4: Hierarchical probabilistic inference for accurate prediction
Florent Meyniel.
INSERM-CEA Cognitive Neuroimaging unit. CEA/SAC/DRF/I2BM/Neurospin center. France

15:00-16:30 Symposium 3

Cortical and subcortical mechanisms in auditory processing and prediction.

Chairperson/s： Robert Zatorre[1] and Emily Coffey[2].

1. International Laboratory for Brain, Music and Sound Research (BRAMS), McGill University, Montreal, Quebec. Canada

2. Concordia University

Talk 1: Cortical-subcortical interactions to violations of auditory predictions measured with 7T functional MRI

Alberto Ara.
McGill University. Canada

Talk 2: Belief updating in the absence of sensory input in the human auditory midbrain and thalamus.

Alejandro Tabas.
Cambridge University and Basque Center on Cognition, Brain & Language. Germany & Spain

Talk 3: Two prediction error systems in the nonlemniscal inferior colliculus: "spectral" and "non-spectral"

Guillermo V. Carbajal, Lorena Casado-Román, Manuel S. Malmierca.
Cognitive and Auditory Neuroscience Laboratory (CANE*L*ab)
University of Salamanca. Spain

Talk 4: Cortico-subcortical interplay in auditory predictive coding

Carles Escera.
University of Barcelona. Spain

Talk 5: Is there a tiny predictive coding mechanism hidden within frequency encoding?

Emily B. J. Coffey.
Concordia University. Canada

16:45-18:15 Symposium 4

Neuroscience of Music: From Perception to Cognition.

Chairperson: Claude Alain.

Rotman Research Institute, Baycrest Centre

Talk 1: Statistical Leaning of Novel Chord Transition Patterns in Adult Nonmusicians: An MMN Study

Kai Ishida.

School of Human Sciences, Osaka University. Japan

Talk 2: Pattern Separation in Musicians and Non-Musicians: Is Sensory Discrimination Associated with Episodic Memory?

Jennifer A. Bugos.

Center for Music Education Research, University of South Florida. USA

Talk 3: Alpha oscillation after correcting for aperiodic activity reveals the effect of music training on cognitive aging.

Jing Lu.

School of Life Science and Technology, University of Electronic Science and Technology of China. China

Talk 4: Music Training and the Deployment of Attention: Evidence from an Auditory Attentional Blink Paradigm.

Claude Alain.

Rotman Research Institute, Baycrest Centre. Canada

Day 2 Wednesday 18th, September 2024

9:00-10:00 Keynote

"A cortical circuit for visual mismatch responses"

Lecturer: Jordan Paul Hamm

Neuroscience Institute Georgia State University. USA

10:00-11:30 Symposium 5

Prediction in action: probing error and prediction signals in single-neurons during active sensation.

Chairperson/s: Yaneri A. Ayala[1] and Steven J. Eliades[2].

1. Department of Neurosurgery, University of Iowa, USA.
2. Duke University School of Medicine, Durham, NC USA.

Talk 1: Vocal Sensory-Prediction and Error Mechanisms in Marmoset Auditory Cortex.

Steven J. Eliades.

Department of Head and Neck Surgery & Communication Sciences. Departments of Neurobiology, Biomedical Engineering. Duke University School of Medicine, Durham, NC USA.

Talk 2: A sensory-motor circuit links action to expected outcome.

David M. Schneider.

Center for Neural Science, New York University. USA

Talk 3: Multimodal mismatch responses in the mouse auditory cortex.

Magdalena Solyga[1], Georg B. Keller[1,2]

1. Friedrich Miescher Insitute for Biomedical Research, Basel, Switzerland.
2. Faculty of Science, University of Basel, Basel, Switzerland.

Talk 4: Single neuron activity in the human and non-human primate brain to unexpected events.

Yaneri A. Ayala.

Department of Neurosurgery, University of Iowa, USA. Laboratory of Comparative Neuropsychology, Newcastle University, UK.

12:00-13:30 Symposium 6

Mismatch responses in populations with developmental disorders.

Chairperson: Axelle Calcus[1] and Kristin Uhler[2].

1. Center for Research in Cognition & Neurosciences. Université Libre de Bruxelles. Belgium
2. Department of Physical Medicine and Rehabilitation. University of Colorado. USA

Talk 1: Basic determinants of MMN elicitation in simple and complex listening environments during neurotypical development.

Elyse Sussman.
Albert Einstein College of Medicine. USA

Talk 2: Development among infants with hearing differences auditory access.

Kristin Uhler[1,2], Philip M. Gilley[1,4.] and Daniel J. Tollin[3].
1. Department of Physical Medicine and Rehabilitation. University of Colorado. USA.
2. Institute of Cognitive Science, University of Colorado, Boulder.
3. Department of Physiology & Biophysics, University of Colorado Anschutz Medical Campus. USA.
4. Institute of Cognitive Science, University of Colorado, Boulder

Talk 3: Comparing Mismatch Responses to Speech in Typical and Atypical Language Development versus Adult's MMNs using Inter-trial Phase Coherence.

Ana Campos.
University of Bolton.

12:00-13:30 Symposium 7

vMMN - The Poor Relative of MMN?

Chairperson: Kairi Kreegipuu.

Institute of Psychology. University of Tartu. Estonia.
Estonian Center of Excellence of Well-Being Sciences

Talk 1: The more complex the better? – Visual change detection at different levels of complexity.

Dagmar Müller.
Wilhelm-Wundt-Institute of Psychology, Leipzig University. Germany.

Talk 2: Investigating the Contribution of Visual MMN to Posterior Negativity in Processing Geometrical Shape Deviants.

Ann-Kathrin Beck[1]. Thomas Lachmann[1]. Motohiro Kimura[2].
1. University of Kaiserslautern-Landau, Germany.
2. National Institute of Advanced Industrial Science and Technology (AIST), Japan

Talk 3: The roles of stimulus-specific adaptation and micro-sequences in visual mismatch negativity: Are there any?

Lili Kővári[1]. Petia Kojouharova[2], Zsófia Anna Gaál[2], István Czigler[2].
1. Doctoral School of Psychology, Eötvös Loránd University, Budapest, Hungary.
2. Institute of Cognitive Neuroscience and Psychology, HUN-REN Research

Centre for Natural Sciences, Budapest,

15:00-16:30 Symposium 8

Insights into Predictive Perception: Understanding the Role of Context

Chairperson: **Lonike Faes and Mahdi Enan.**
Faculty of Psychology and Neuroscience
Maastricht University

Hungary.

Talk 4: Effect of childhood hearing loss on subcortical and cortical processing of speech.
Axelle Calcus.
Center for Research in Cognition & Neurosciences (CRCN). Université Libre de Bruxelles (ULB).

Talk 4: What are the relationships associated with a simple vMMN for letters?
Kairi Kreegipuu.
Institute of Psychology, University of Tartu. Estonia; Estonian Center of Excellence of Well-Being Sciences

Talk 1: Predictive processing in context.
Ryszard Auksztulewicz and Hannah McDermott.
Free University Berlin

Talk 2: Exploring Predictive Auditory Processing Using High-Field fMRI and MEG.
Jorie van Haren[1], Lonike Faes[1], Mahdi Enan[1], Floris de Lange[1], Sonja Kotz[1], Federico De Martino[1,3]
1. Faculty of Psychology and Neuroscience, Maastricht University, The Netherlands
2. Donders Centre for Cognitive Neuroimaging, Nijmegen, The Netherlands
3. Center for Magnetic Resonance Research, Minneapolis, USA

Talk 3: Pre-stimulus alpha oscillations encode stimulus-specific visual predictions.
Dorottya Hetenyi, Joost Haarsma and Peter Kok
Wellcome Centre for Human Neuroimaging, University College London. UK

Talk 4: Flexible and efficient representations through predictions in the macaque face-processing hierarchy.
Tarana Nigam[1,2], Caspar M. Schwiedrzik[1,2]
1. Neural Circuits and Cognition Lab, European Neuroscience Institute Göttingen - A Joint Initiative of the University Medical Center Göttingen and the Max Planck
2.Institute for Multidisciplinary Sciences, 37077 Göttingen, Germany; Perception and Plasticity Group, German Primate Center, Leibniz Institute for Primate Research, 37077 Göttingen, Germany.

16:45-18:15 Symposium 9

Processing of predictable and non-predictable melodic and rhythmic sequences.

Chairperson: Bidet-Caulet Aurélie and Caclin Anne.

Lyon Neuroscience Research Center

Talk 1: What are the neural mechanisms of temporal prediction in probabilistic sensory contexts?

Pierre Bonnet, Mathilde Bonnefond, Anne Kösem

Lyon Neuroscience Research Center (CRNL), Computation, Cognition and Neurophysiology team (Cophy), Lyon, France

Talk 2: The influence of tempo on neural encoding of rhythmic hierarchy in premature newborns.

Mohammadreza Edalat[1], Fabrice Wallois[1], Ghida Ghostine[1], Guy Kongolo[1], Laurel J. Trainor[2], and Sahar Moghimi[1]

1. Institut National de la Santé et de la Recherche Médicale, Unité Mixte de Recherche 1105, Groupe de Recherches sur l'Analyse Multimodale de la Fonction Cérébrale (GRAMFC), Université de Picardie, 80054 Amiens, France.
2. Department of Psychology, Neuroscience, and Behaviour, McMaster University, Hamilton, Ontario L8S 3L8, Canada

Talk 3: Musical expectations and neural error responses in natural music listening.

Paul Robert[1,2], Mathieu Pham Van Cang[3], Manuel Mercier[1], Agnès Trébuchon[1,4], Luc Arnal[3], Keith Doelling[3], Benjamin Morillon[3]

1. Institut de Neurosciences des Systèmes, Aix-Marseille Université, Inserm UMR 1106, Marseille, France
2. Institute for Language, Communication, and the Brain, Aix-Marseille Université, Marseille, France
3. Institut Pasteur, Université Paris Cité, Inserm UA06, Institut de l'Audition, Paris, France
4. APHM, Hôpital de la Timone, Service de Neurophysiologie Clinique, Marseille, France

Talk 4: Musical expectations in human and non-human primates.

Roberta Bianco[1], Nathaniel J. Zuk[2], Felix Bigand[1], Eros Quarta[3], Stefano Grasso[3], Flavia Arnese[1], Andrea Ravignani [3,4,5], Alexandra Battaglia-Mayer[3], Giacomo Novembre[1]

1. Italian Institute of Technology, Rome, Italy
2. Nottingham Trent University, Nottingham, UK
3. Sapienza University of Rome, Rome, Italy
4. Max Planck Institute for Psycholinguistics, Nijmegen, the Netherlands

5. Aarhus University & The Royal Academy of Music, Aarhus, Denmark

Day 3 Thursday 19th, September 2024

9:00-10:00 Keynote

"A framework for MMN theory and a taxonomy for MMN paradigms"

Lecturer: Erich Schröger

Wilhelm Wundt Institut für Psychologie. Universität Leipzig. Germany.

10:00-11:30 Symposium 10
Language

Chairpersons: Thomas Jacobsen[1] and Sari Ylinen[2].

1 Experimental Psychology Unit, Helmut Schmidt University. Germany

2 Faculty of Social Sciences. Tampere University. Tampere. Finland

Talk 1: Incorporating more phonetic contrasts into bilingualism and language learning research: Can MMN be made more efficient?

Begoña Pericas Herrero and Paul Iverson.
Dept. of Speech, Hearing and Phonetic Sciences, University College London. UK

Talk 2: Sensitivity to statistical stimulus properties in within-category MMN.

Chao Han[1], Arild Hestvik[2], William Idsardi[3]
1. University of Toronto
2. University of Delaware
3. University of Maryland.

Talk 3: Effects of language environment on auditory neurocognition.

Mari Tervaniemi.
Brain Research Unit, Centre of Excellence in Music, Mind, Body and Brain, Faculty of Educational Sciences, University of Helsinki

Talk 4: Establishing neural representation for new word forms in 12-month-old infants.

Sari Ylinen[1], Emma Suppanen[2], István Winkler[3], and Teija Kujala[2].
1. Faculty of Social Sciences, Tampere University, Finland. Tampere University;
2. University of Helsinki
3. HUN-REN Institute of Cognitive Neuroscience and Psychology.

12:00-13:30 Symposium 11

New Approaches to MMN Measures in Psychosis

Chairperson: Dean F Salisbury.

Clinical Neurophysiology Research Laboratory, Western Psychiatric Hospital, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA

Talk 1: Selective Dysfunction of NMDA Receptor in First Episode Psychosis as Revealed by Computational Synaptic Modeling of Mismatch Negativity.
Fran López-Caballero.
Clinical Neurophysiology Research Laboratory, Pittsburgh, USA

Talk 2: Children at familial high risk of schizophrenia and bipolar disorder exhibit altered connectivity patterns during pre-attentive processing of an auditory prediction error.
Kit Melissa Larsen.
Copenhagen University Hospital. Denmark

Talk 3: Abnormal inter-hemispheric effective connectivity from left to right auditory regions during Mismatch Negativity (MMN) tasks in psychosis.
Christian Valt.
Univ of Bari Aldo, Italy

Talk 4: Volatility effects on group differences in MMN in schizophrenia.
Matthew Godfrey.
University of Newcastle, Australia

Talk 5: Stream segregation and temporal integration in psychosis.
Ken Suzutani.
Fukushima Medical University, Fukushima, Japan

12:00-13:30 Symposium 12

Somatosensory MMN, prediction error and surprise.

Chairperson: Felix Blankenburg[1] and Wolfger von der Behrens[2].

1. Freie Universität Berlin
2. University of Zurich and ETH Zurich

Talk 1: Somatosensory Errors and Surprise shape Cortical Circuit Activity and Perception.
Gwendolyn English, Newsha Ghasemi Nejad, Mehmet Fatih Yanik, Wolfger von der Behrens.
Institute of Neuroinformatics.University of Zurich and ETH Zurich. Switzerland

Talk 2: Modeling mismatch responses across the somatosensory, visual, and auditory domain.
Miro Grundei, Pia Schröder, Sam Gijsen, Timo Torsten Schmidt, Felix Blankenburg.
Neurocomputation and Neuroimaging Unit. Department of Education and Psychology. Freie Universität. Berlin, Germany

Talk 3: Dynamics of the Somatosensory Mismatch Response Across Ages: Insights from EEG and MEG Studies.
Piia Astikainen, Elina Kangas, Heidi Pesonen, Qianru Xu, Juho Strömmer.
University of Jyväskylä. Finland.

Talk 4: Action-related omission responses in the somatosensory modality.
Nicole Wetzel, Andreas Widmann, Tjerk T. Dercksen.
Center for Behavioral Brain Sciences, Magdeburg, Germany

16:45-18:15 Symposium 13

Significance and usefulness of omission MMN research.

Chairperson: Hirooki Yabe.

Department of Mind & Brain medicine. Fukushima Medical University (FMU). Japan.

Talk 1: Conditions for omission MMN generation and its research significance.

Hirooki Yabe.

Fukushima Medical University. Japan

Talk 2: Prediction-Related Frontal-Temporal Network for Omission Mismatch Activity in the Macaque Monkey.

Takanori Uka.

Juntendo University, Tokio. Japan

Talk 3: Neuronal Responses to Omitted Tones in the Auditory Brain: A Neuronal Correlate for Predictive Coding.

Ana Belén Lao-Rodríguez[1], David Pérez-González[1], Bernhard Englitz[2] and Manuel S. Malmierca[1].

1. CANELAB. University of Salamanca. Spain

2. Department of Computational Neuroscience Laboratory. Department of Neurophysiology. Donders Centre of Neuroscience. Nijmegen, The Netherlands.

Talk 4: Negative Prediction-Error Neurons in Rat Auditory Cortex: Response Properties and Implications for Predictive Coding Circuits

Amit Yaron[1], Tomoyo Shiramatsu-Isoguchi[2], Felix Kern[1], Hirokazu Takahashi[2], Zenas C. Chao[1]

1. International Research Center for Neurointelligence (WPI-IRCN), The University of Tokyo Institutes for Advanced Study.

2. Graduate School of Information Science and Technology, The University of Tokyo

16:45-18:15

SPECIAL TRIBUTE SYMPOSIUM TO RISTO NÄÄTÄNEN

Talk 1: ***Teija Kujala.***
Preattentive language processing and its deficits in developmental language dysfunctions.
Professor. Cognitive Brain Research Unit
Centre of Excellence in Music, Mind, Body and Brain
Department of Psychology and Logopedics
Medicum, Faculty of Medicine
University of Helsinki. Finland

Talk 2: ***Leon Y. Deouell***
What can we learn from the variety of mismatch responses across the brain?
"Jack H. Skirball Professor" Brain Research Department of Psychology Edmond and Lily Safra Center for brain sciences (ELSC)
The Hebrew University of Jerusalem. Israel

Talk 3: ***Elvira Brattico***
MMN for studying musical predictions in the brain"
Center for Music in the Brain, Department of Clinical Medicine, Aarhus University, Denmark
Department of Education, Psychology, Communication, University of Bari, Italy

Talk 4: ***Paula Virtala***
Mismatch responses from infancy to childhood and their relationship with language abilities
PhD. Academy of Finland Centre of Excellence for Music, Mind, Body, and the Brain
Cognitive Brain Research Unit
Department of Psychology and Logopedics
Faculty of Medicine
University of Helsinki. Finland

Talk 5: ***Israel Nelken***
From single neurons to mismatch negativity – analogies, homologies, and gaps.
Professor. Edmond and Lily Safra Center for Brain Sciences
Goodman Building,
Edmond J. Safra Campus, Givat Ram
Jerusalem 9190401, Israel

Talk 6: ***Gregory Light***
MMN as a Biomarker: Developing Innovative Treatments for Schizophrenia in Global Clinical Trials
Professor. UCSD Department of Psychiatry.
Director of the Mental Illness, Research, Education and Clinical Center (MIRECC) at the VA San Diego Healthcare System.
USA

CLOSING REMARKS